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A JOURNAL
 DEVOTED
 TO BEES
 AND HONEY
 AND HOME
 INTERESTS

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POLLEN in queen-cells I had been taught to believe a sure sign of hopeless queenlessness. I think I've seen a number of exceptions. June 26 I met a plain case. In one of my "barns" I found on one comb three enlarged cells containing pollen, with the queen laying, and all going on prosperously.

YOU DON'T SEEM entirely certain, Mr. Editor, whether I prefer trees to shade-boards for hives. Well, there's no doubt in my mind as to my preference—trees every time. I want the shade more for the benefit of the operator than for the benefit of the bees. [Yes, I was satisfied in my own mind; but I am glad you have put more emphasis on it.—ED.]

C. DAVENPORT gives a bright thing in *American Bee Journal*. Ordinary Mason fruit-jars are good for extracted honey, except that the honey oozes by the rubber band, making the outside surface of the can sticky. Well, dip (not soak or cook) the rubber band in boiling beeswax, and never a drop will ooze through. He is probably right in thinking that many a can of fruit would be saved from spoiling if the rubber rings were waxed.

AN UNUSUAL CASE was this: June 26 I found in a nucleus a young queen with her wings gnawed entirely away. Directly I found on the same comb a young queen with perfect wings. The two met and had a little conference, but did not seem very hostile. Next day both were present; the 28th I saw the winged one; 29th, the wingless one; July 3, the winged one. So both were there together at least three days, and whether the wingless one is still there I don't know.

EDITOR BERTRAND says foul-brood spores may be floating in the air. Others dispute this, I think, and I should be glad to believe that the distinguished Frenchman is wrong. He thinks that, in localities where the disease has been for some time, the bees become somewhat immune, or else the scourge loses some of its virulence. He believes in curing by

naphthol beta or formic acid. [It is barely possible that foul-brood spores might float in the air, but I think it is very doubtful.—ED.]

PAGE 498 is a strong argument in favor of Doolittle cells. What is now wanted is to have added to the list of supplies a proper division-board that may be used in the regular hive. I suspect that having the cells between two combs with young larvæ is an important point. In hot weather wouldn't two compartments be as good as three? Is an 8-frame hive large enough for three compartments? [Yes, in hot weather two compartments would do, perhaps, as well as three; but having in any case the frame of cell-cups between two combs of young larvæ is quite important.—ED.]

PROF. S. J. HUNTER, who will be pleasantly remembered by bee keepers who attended the Omaha convention, has written "Alfalfa, Grasshoppers, Bees; their Relationship," a pamphlet published by the University of Kansas, that is of much interest. A careful counting of seeds showed that "the seed crop of alfalfa upon which bees worked was 66.6 per cent greater than the crops taken from alfalfa dependent upon other insects for pollination." Coming from a man who is plainly no bee-keeper, that statement has weight. [This is indeed a valuable point; and yet there are just a few, even among bee-keepers, who insist that bees have very little to do with the pollenization of plants.—ED.]

ONE FEELS a bit confused on reading, on page 516, a heading, "Bees for Fertilizing Cucumbers," and then the next item beginning, "I always fertilize my Irish potatoes with cotton seed, and have never seen a bug on them." Now, if potatoes can be fertilized with cotton seed without the intervention of bugs, could not cucumbers be fertilized with cotton seed without the intervention of bees? On the other hand, might it not be cheaper to have either fertilized by bugs or bees than to fertilize them by hand by means of cotton seed? [Dr. Miller seems not only to have become "rattled" himself, but he succeeds in rattling everybody else who tries to read his Straw and understand "what he is at." I suppose the sum and substance of his criticism is that the word *fertilizer* means one thing in speaking

of flowers, but something else when we are talking about enriching the soil.—A. I. R.]

"COGITATOR" says, in *American Bee Journal*, that if powdered sugar is almost always largely cornstarch, it has an important bearing on the provisioning of queens for journey. Worth thinking about. [We have used what is called confectioners' and powdered sugar; but the former contains starch, without a doubt, and it is liable to kill bees and queens in queen-cages provisioned with candy made with it. We have, during the last few years, ordered powdered sugar, and specified that it should contain absolutely no starch. Since we have discovered that confectioners' sugar contains starch, and have used nothing but the powdered sugar without the starch, we have had very much better success in sending queens long distances. With powdered-sugar candy we provision long-distance cages, sending them to Italy, and then have them returned with queens and bees. We have had several shipments by mail, of a dozen each, with scarcely the loss of a queen.—ED.]

COLOR OF HONEY. Prof. Hunter's pamphlet gives photographs of six samples of honey in test-tubes. Beginning with the lightest, they range in shade as follows: 1, alfalfa and melon bloom; 2, white clover; 3, alfalfa; 4, basswood; 5, sweet clover; 6, knotweed. I suppose there's no little variation in different localities as to the shades of honey. Certainly I have always considered alfalfa lighter than white clover, but here it is darker. And is basswood usually darker than white clover? [The color of extracted honey from the same source varies greatly in different localities, and varies in the same locality in different years. Alfalfa, as a rule, I think, is lighter in color than white clover; basswood is generally a little darker, but only slightly so. Sweet clover is a little darker, on account of having somewhat of a greenish tinge. Knotweed or smartweed ought to be classed as amber, although I have seen some samples that were very light-colored.—ED.]

I DON'T SEE that Mr. Cutts gets a very satisfactory answer, p. 499. *Apis dorsata* may bring no ills to this country; but so long as there is a possibility that it *may*, it would be the part of wisdom to stick to your original opinion that none should be brought here until it was *known* they could be domesticated in their own country. Personally, I haven't the slightest fear of them; but if I lived in Alabama I'd just a little rather not have any in the woods. [Even if I lived in Alabama I should not have the slightest fear of *Apis dorsata* ever making any trouble. They gather so little honey, comparatively, that the amount they would appropriate would be only as a drop in the bucket compared with the quantity gathered by *Apis mellifica*—at least that is my impression from all the information I can gather. However, there is no immediate danger of *Apis dorsata* being imported into this country. Efforts are being made to domesticate them in their own country.—ED.]



This hot July is rather dry,
And nectar comes quite slow;
Sweet clover helps to fill the gap
In Northern O-hio.

AMERICAN BEE JOURNAL.

Prof. Cook believes the food of larvæ consists of digested pollen, and that very nearly the same food is fed by the nurse-bees to the queen and drones.

In his reply to Mr. Doolittle, Dr. Miller refers to a habit many have of speaking of a colony of bees as a "swarm." We always change the word here when the error is obvious. To call a colony of bees a *swarm* when they are working is like calling a thousand men at work a mob or a regiment.

In speaking of the advance in prices of hives, etc., Mr. York says that is all right if the price of honey corresponds. "But will it?" he asks. Some years ago Mr. Heddon took the ground that the price of honey could not be brought up, as it is not a staple article, and people do not care whether they have it or not. The sale of some things, like flour, sugar, tobacco, and liquors, will go on increasing in volume, as men will have them, regardless of cost, especially—

Illinois is to have a State Food Commissioner; and the internal evidence goes to show that the poisoners-general of that commonwealth are about to feel a sudden rise in the temperature. Nothing is more intimately connected with the public health and wealth than the manner in which such officers do their duty. If people have a right to know any thing, it is the nature of what they buy to eat. Congress itself should act in the matter in connection with the States.

Mr. C. P. Dadant writes a good article on remedies for stings. He seems to have but little faith in any of them, but thinks ammonia might help if used promptly. The trouble is, the poison is immediately taken up by the blood; and unless an alkaline substance can be brought to bear on the venom, an outward application will not avail. Mr. Dadant says the system becomes used to the poison, so that it eventually does but little harm. Grinn & Barrett seem to be the most successful doctors.

To get rid of ants, Prof. Cook says corrosive sublimate may be brushed along the floor where the ants enter, or strings may be dipped into it and laid along where the ants will have to cross them. The ants dislike this poison so much that they leave at once. Great care should be exercised in using so rank a poison

where children are around. Prof. Cook says so many interesting things about ants that one can hardly help having a kindly feeling for them. The agricultural ant of Texas clears the ground, sows the seed, and raises its own grain.

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Mr. York fears that Mr. Hutchinson and I would not favor a shorter spelling, even if it could all be done in a chunk. Noah Webster shortened our spelling very materially in his dictionary by leaving out one *l* in such words as *traveled*, *beveled*, *jeweled*, etc., and in many other ways. I have always favored that, and the reform is now practically accomplished. In a job office the new spelling would make endless trouble. Last winter we printed a job for a firm in Jamaica, and they said they wanted English spelling or none; so we had to spell it *harbour*, *labour*, etc. I feel sure our common spelling will not be modified during the next century.

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Writing to Mr. York, Mr. Doolittle says: "I am fearfully driven with work now, and have sore eyes and a lame back to make work as uncomfortable as possible." I have always felt it was a pity that Mr. Doolittle should spend his useful life in doing his own work instead of hiring help. If he had secured help during the last twenty years, and had merely supervised his work, I am confident that a cipher would now be standing on the right side of every "\$1" he can show. I do not see how any man can write as much for the press as he does without a stenographer, to say nothing of the great amount of work he does in his apiary and on his farm. I am speaking in general terms, of course, for perhaps Mr. D. knows his own business better than I do.

❧

CANADIAN BEE JOURNAL

It seems that the honey from eucalyptus, or that having a minty flavor, is not safe to send to England, as it is not liked there. The editor denies the minty flavor of the lot of honey referred to, and says it will be difficult for the Ontario bee-keepers to believe that there is mint in Ontario honey. By "mint," I suppose we are to understand a flavor suggestive of peppermint or spearmint. It seems to me mint has never been considered a detriment to honey on this side of the line.

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The London *Daily Free Press* prints as a sober truth the report that pure honey of any particular kind can now be had by having "a large lot of ground, perhaps half an acre," planted, say, to white clover, and confining the bees to it with wire netting, putting the hives under it. In this way mixed honeys can be avoided. The editor well says: "Bee-keepers will smile at the above, and yet it is a sample of bee-literature all too common at the present day—not alone on bees and honey, but probably in every other line." However absurd the statement may be, it is by this time an established thing in the world's be-

lief, and years of contradiction will not eradicate it.

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AMERICAN BEE-KEEPER.

Mr. G. M. Doolittle leads off with an article on hiving swarms. He says that all the drumming on tin pans, blowing of horns, firing of guns, etc., has nothing to do with bees clustering. Nineteen swarms out of twenty will cluster in some place within reach of the apiarist soon after leaving their old home, whether any noise is made to settle them or not.

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The editor, H. E. Hill, is in Stuart, Fla., where he had an apiary three years ago, near the Indian River narrows. He gives a fine view of his apiary. The hives seem right on the brink of a large body of water on which is a skiff. The picture is a tempting one, and makes one wish to go to Florida. On the St. Lucie River, Mr. Hill extracted, barreled, and shipped 3500 lbs. of palmetto honey from 65 colonies in two weeks. When that failed he moved south to Miami, in the sailboat, and then to Stuart, making a cruise of 300 miles. One morning they were just ready for breakfast when an overhanging limb swept the table bare, throwing the viands to Neptune.



GLEANINGS FROM GLEANINGS.

The Importance of Careful Accurate Observation.

BY A. J. WRIGHT.

Mr. W. M. Whitney, in an article on page 436, seems inclined to have a little fun over the idea of "dark rays." Well, that is all right. I like to see others enjoy life, even if it is sometimes at my expense; and then it often happens that one, after years of patient study, investigation, and experiment, is laughed at by another who has never spent a half-hour in study on the subject.

Mr. Whitney says: "Just shut your eyes, and think a moment. How much darkness tabby cat could get, even in the daytime, by shutting her eyes! Then where would poor mousie be? What's the use of expanding the pupil, even in the dark? Shut the eye; it'll be dark enough."

Now, friend Whitney, I have not anywhere contended that an animal could see by shutting its eyes, but that, in the element necessary to vision, the eye must be open. The pupil of the cat's eye in the full glare of daylight becomes but a dark line. Is the eye thus so nearly closed to enable the cat to see? No. It is for the purpose of shutting out those rays of light which in the nocturns are a hindrance to perfect vision.

This subject of how certain animals can see in the dark is very interesting, and opens up

a wide field for investigation and experiment. I have spent many nights in field and forest, in the haunts of the owl, fox, etc., and I have become convinced that many animals can see perfectly *only* in total darkness. Carefully dissect and examine with microscope the eye of the owl, which sees best in the dark, from sclerotic coat and cornea to optic nerve, and then compare this with the eye of the common hen, which can scarcely see to walk straight after four o'clock on short days. Then compare these with the eye of the eagle or the hawk, which can look at the full blaze of the midsummer sun without blinking, and you will be convinced, I think, that the eye of the owl was designed for use in a different element than the eye of the eagle, hawk, and hen.

Mr. Whitney further says: "Why, bees ought to do their best honey-gathering during the darkest nights." I think not. I do not believe bees can see at long range in the night; and from some observations made I doubt if animals that see in the dark can distinguish colors. If this is so then the bees would be placed at a disadvantage in selecting blossoms from which to procure the nectar. Then, too, bees, like animated nature in general, must have a time for rest.

THE KING-BIRD A REAL PEST IN THE APIARY.

Mr. W. H. Seely, on page 436, says: "On page 354, A. J. Wright makes a common but most unjustifiable attack on the king-bird as an enemy and destroyer of honey-bees." I can readily forgive Mr. Seely, as, from his own confession, he knows but little about honey-bees, as he does not own one and never did; and it is equally plain that he knows but little about the king-bird, having taken his ideas on the subject from a report of the Secretary of Agriculture.

Now let me investigate this report. Not having the report, we must rely on Mr. Seely's statement. Six months were covered in collecting the stomachs of 171 *innocent* king-birds in nineteen States, Canada, and the District of Columbia. Only 14 stomachs contained any traces of the honey-bee, and a total of only *fifty* bees were found. Of these, 40 were drones and only 4 were workers. In many instances birds were shot near bee-hives, but no trace of bees was found in their stomachs; hence the conclusion that the king bird is not an enemy of the honey-bee, which every experienced apiarist knows to be wrong.

Well, let us lay this report and the specialists of the department on the shelf for a time, while we spend a few moments in the apiary with our shotgun. It is quite early in the morning, and no drones are flying, so we are quite sure that, if any bees are caught, it must be the workers. Here comes a king-bird right among the bees, and, there! he has caught one (for convenience' sake I assume this to be a male, Mr. Editor), and has retired to his perch on the barn roof. Shall we shoot? No, not yet. There he goes after another. So we wait until he has captured six, which is certainly enough to convict him. Getting within range, bang goes the gun, and tum-

bling to the earth comes this "innocent" sacrifice to the cause of science—how innocent we shall soon know. Picking up the bird, and finding him dead, we open the mouth, expecting to find the last bee captured still sticking in his throat; but, finding none, we open with a penknife the throat from mouth to first stomach. No bees! We open this stomach. Empty! We extend our explorations to the second stomach, and finally throughout the entire anatomy of the bird, and fail to find even a trace of bees. Ah! Mr. Seely is right. The report is right, and Wright is wrong. Just one moment, gentlemen. I should like to ask one question: What was that king-bird doing among the bees? Oh, yes! "Just looking for drones," you say. Certainly, that is plain enough; and, not finding any, he went without his breakfast—nice bird!

I am anxious to know if this nice little birdie does really catch drones; so we will be on hand about two o'clock, and see if we can find out. Well, here we are, with the air fairly roaring with lazy drones and busy workers, and here are two king-birds ready for business, one on the barn roof and the other in the air, moving further down the line. We will select the one on the roof. Now *he* starts in among the bees, and there can be no mistake—a capture is made; but whether a drone or a worker can not be determined. Soon another capture is apparently made, and the same thing is repeated for perhaps twenty minutes, during which time I should say that ten or more bees had been caught.

Our "artillery" being now brought to bear, this victim of man's thirst for knowledge lies dead at our feet. The knife is again used, with the result that we find in the first stomach one drone and nothing else. In the second stomach, fragments of insects, but nothing that could be classified. Here is a mystery, surely—a dozen or more bees caught, and only one to be found. The report referred to above is all right, and probably correct, so far as the number of bees found is concerned. In fact, Mr. Editor, you may shoot king-birds all day, and the chances are "16 to 1" that you won't find a worker, and rarely a drone, in the stomachs of the entire lot.

What, then, has become of the bees captured? A king-bird that has been boarding with me for a few days, and taking his meals from my apiary, has "given the whole business away." This bird seizes a worker, which he much prefers to a drone, by the abdomen, giving the bee a few smart raps against the perch. He then passes the body of the bee its entire length transversely between his upper and lower mandibles, by a peculiar motion of the latter. This is continued until the juices are thoroughly extracted, when he opens his mouth and *drops* the useless carcass to the ground. No wonder, then, that we failed to find workers in the stomach. But how about the drones? Well, when a drone is seized he is swallowed at once; and when several have been taken into the first stomach the bird sits quietly on the perch for half an hour, sometimes longer, when, by a few motions of the

neck, the casting is brought up. This is about the size and shape of an ordinary pea, and consists of the hard indigestible portions of insects.

I do not believe that the king-bird ever intentionally swallows an insect having a sting. Drones are not often found in the stomach of the king-bird, for the reason that he prefers workers; and also for the reason that, while the casting is forming, he is not generally near the apiary, and therefore not so likely to be killed at a time when drones might be found in the stomach.

Bradford, N. Y.

[The foregoing, especially that part in relation to king-birds, illustrates how unscientific are some of the experiments and observations of even scientific men. That the king-bird is an enemy of the bee-keeper is clearly proven. I have seen king-birds catch bees on the wing repeatedly, and have watched them carefully, as I thought; but I always supposed, *of course*, that they swallowed them; but I could never understand why their throats were not badly stung in the operation. If Mr. Wright is correct (and it would seem that he is), the bees are rarely swallowed, but are captured simply to extract the honey and perhaps other juices of the abdomen, after which the carcass is cast aside. If I am not mistaken, Mr. Wright has been the first one to contribute these interesting facts in regard to king-birds and bees.

Some of his notions have been severely criticised by the *Review* critic; and even the editor of this journal has received a mild scoring for publishing such "nonsense;" but if Mr. Taylor will conduct his experiments as Mr. Wright has his, he may get his eyes opened to more "rays of light." I don't say that Mr. Wright's ideas on how nocturnal animals see are correct; but they should hardly be classed as so much "nonsense." One who is so close an observer as Mr. Wright should receive at least candid consideration.—Ed.]

PESTS IN THE APIARY; BEE-BIRDS AND TOADS.

This spring in my queen-rearing apiaries the bee-birds, much like a king-bird, gathered in numbers sufficient to eat about a third of the young queens; and about ten days ago I found that they had eaten all the drones, so as to stop the queen business for the time at least. I have advocated shooting; but some of the bee-men say they will be just as thick the next day. I do not believe that those I shot will eat any more queens or drones. From now on we shall have to visit our apiaries about twice a week in the evening, armed with a lantern and a well-sighted repeating club, double-barreled, too, as we have a kind of frog that goes to the hives and eats its fill of bees. It is nothing unusual to kill ten to fourteen in one evening. They are as large as the eastern bullfrog, of about the same color. They will soon reduce a strong colony if they are not killed or trapped.

This valley is well stocked with bees, and many of the apiaries are managed by special-

ists, some of whom have as many as 1000 colonies. We have two sources of honey—mesquite, a tree growing about the size of an apple-tree. It blooms about April 1 to May 10. The nectar is as clear as basswood, but better flavored, and equal to willow-herb. Our main crop is gathered from alfalfa, which is fine honey, a little darker in color. Some prefer it to any other honey by not having that strong sharp taste. Most of the bees kept here are very cross hybrids. I shall Italianize as fast as possible, if the birds will allow it. I will surely burn lots of powder if they do not. I hope every bee-keeper in this valley will kill all the bee-birds possible.

Phoenix, Ariz., June 18. WM. LOSSING.

A CASE OF BEE-FEVER.

Laying Tall Sections on Their Sides while on the Hives.

BY E. W. BROWN.

Continued.

When I sat down to write I intended to inform the fraternity of a great misfortune that is about to happen to us who depend upon our bees for our bread; but instead of doing so I have written things which I had no intention of telling—at least not until the events were in the dim past. It is much easier to tell about the foolish capers we cut up years ago, and keep quiet about what we did yesterday. However, if I may be excused for taking up so much space in a valuable journal, I will proceed to relate the sad news. Doolittle, you must listen to this.

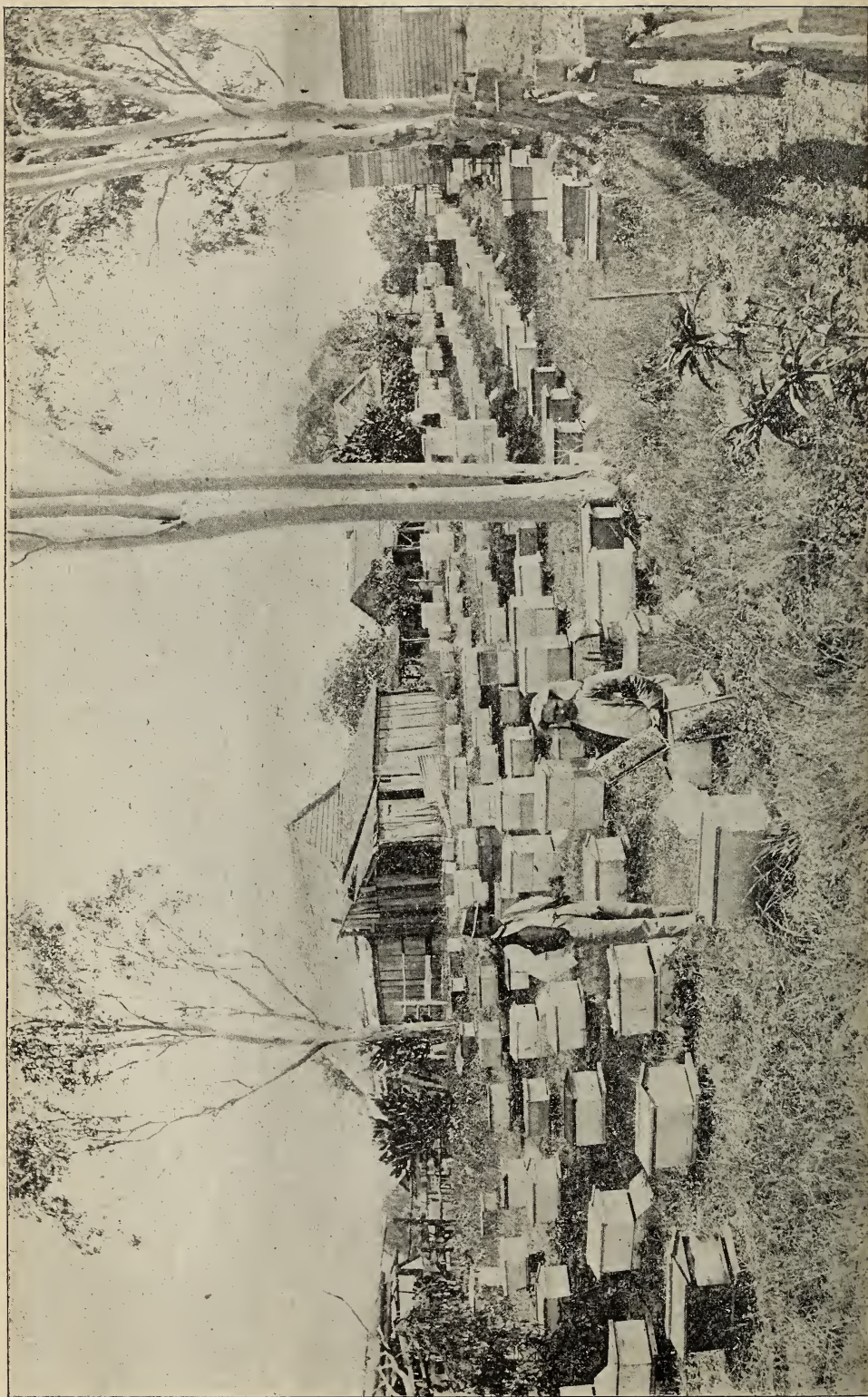
While in Buffalo one day this winter I went into a restaurant for my breakfast. While waiting for the waiter I was aware that two men were having what appeared to be a very interesting conversation across the table at which I was seated. My mind, however, was so deeply absorbed with visions of Aspinwall non-swarming dummies that I heard nothing they said until I thought I heard somebody say "king-bee."

"The spirits must be whispering to me," thought I, and my mental energy was soon tusseling with Brown's non-swarming bottom-board when again I heard a voice say "king-bee." It startled me so that my hair must have stood straight up, and I distinctly felt a cold shiver up and down my spine. There was no mistake about it this time; somebody was talking about bees.

Just then the waiter brought me my rations, and I proceeded to break my fast, and also, at the same time, to stretch my neck—yes, I had a rubber neck just then—to hear more plainly what I might learn about king-bees.

"I tell you," said the speaker, "he has got it right down to a science. He has it all figured out and proved, as plain as black and white can make it, how he can get tons and tons of honey right here in Buffalo in the winter time."

Oh, what an indescribable feeling came over me, and how faint-like I began to feel! "Oh!" said I to myself, "what *shall* I do



MEL BONUM APIARY, GOODNA, QUEENSLAND, AUSTRALIA, SAID TO BE THE LARGEST QUEEN-REARING ESTABLISHMENT IN THE SOUTHERN HEMISPHERE. SEE EDITORIALS.

for an honest living now? what *can* I do, times are so hard?" I thought of last winter when I went all over the city looking for work, and I was met everywhere with "There's no opening now. We have men laid off who will, of course, be put to work before hiring new men."

But the man was still talking. "He has interested capitalists, and they are now preparing to erect immense glass buildings, and will have this honey-plant growing all winter; and by keeping up the proper temperature the bees—why, they will think they are in Cuba. The greatest trouble will be to control the excitement of the bees and keep down excessive swarming, so he says. And in the summer they will also have an island (which they have already leased) planted with this seed, and they will have hundreds of hives in the center of the island."

"Isn't it wonderful what science and money can do?" remarked the other man.

Doolittle, what are we going to do about this monopoly business?

"Why, this expert," continued the talker, "has it down so fine that he can give scientific proof that there are just thirty-two bees in each hive that do nothing but feed the king-bee. He has sixty swarms right here in the city now, and he can handle them just as we would handle beans. It told all about the whole business in the newspaper. I have the paper at home, and will show it to you some time."

I saw that the conversation was about to end; and as they arose from the table I asked, "Who is this bee-man you speak of?"

"Oh! his name is Sleeper; he probably knows more about bees than all the bee-keepers in the country. You ought to read the piece in the paper I've got about him. He's an educated man, and has made a special study of bees."

I was foolish enough to try to argue with him, and I soon found out that it was useless. He seemed to be offended, and said, in answer to my points, "Oh, well! he proved it in plain black and white, and *he's* an expert; there's none of them better than *he* is."

Mr. Editor, don't you think you had better advise bee-keepers to sell out at any price before the value of bees drops to zero? You might tell them that you know a man who is foolish enough to give fifty cents per colony for 100 colonies delivered, express prepaid, payable when he has the money to spare.

Yes, sir; I'm going to stay right here and buck against these bee-capitalists with their glass buildings. Even the fear of financial death will not cure my bee-fever. I have just ordered 500 more of my special fences from the Root Co., and, unless too many colonies spring-dwindle, I shall need more. I used 600 last year, and I am just that crazy that I actually believe I can get much more surplus with much less swarming with my own section, which lies down like a brick on its edge. A. I. Root well says that we all have our notions. I am so notional that I will not use slats under my sections. What do I use to support them? Why, nothing—simply nothing; the pressure of the fences against the

sections is ample to support them a bee-space above the brood-chamber. You see I use but three sections to a fence. The section stands 4 inches high, $5\frac{3}{4}$ long ($\frac{1}{8}$ scant), and $1\frac{1}{4}$ thick. This will hold 16 ounces of white clover, or $16\frac{1}{2}$ ounces of buckwheat honey.

By the removal of the $\frac{3}{8}$ -inch slat, and by laying the section on its side, I make my surplus-arrangement so low and so close to the brood that the bees would just as soon go to work as to swarm. See? That is not all. The bees are divided into only three clusters to a fence, while in Root's Ideal super they are divided into five clusters on each slat. I tested ten Ideal supers last year, and I can truthfully say that I could get two of my own supers filled to one Ideal. It is but fair to say, however, that I used 40 sections in each ten-frame Ideal super, the sections being $1\frac{1}{4}$ thick. The eight-frame Ideal super gave better results. Just imagine how easy it must be to get bees *started* in low brick sections; then imagine how easy it must be to coax them up four inches higher when the proper time arrives to tier up.

These sections, which are broader than tall, are packed solid to the wood with honey, R. C. Aikin to the contrary notwithstanding. I believe our editor has confessed that tall sections, unless filled with foundation, are apt to be light in weight on account of the bees neglecting the outside cells next to the wood. I found this to be true.

I have tried one Danzy hive. I like the sections next to my own; but there is too much kindling-wood about the hive. As I did not fill the sections full of foundation they were light weight, and I could get but 10 cts. per section for them while my own brought $12\frac{1}{2}$ cents each. I pack my sections in shipping-cases with glass three inches high. It is penny wisdom and pound folly to use a narrow strip of glass. Read that sentence twice, and do not forget it. If you use tall sections, use a higher glass.

Mr. S. T. Pettit, you are next in order. You have accomplished much, and you have generously given us the fruit of your labor. We thank you for what you have done, but why do you stop? Why not put "dividers" in the brood-chamber and encourage the maintenance of brood in the outside combs, to the exclusion of honey, at a time when we want all the honey above? Would not this also form a sort of ante-room for the comfort of the bees on rainy days and at night? and would it not have a tendency to keep the bees from getting that silly notion into their heads that they are too numerous to live in one hive? Let's not give up this swarming business as long as Doolittle doesn't know any better than to waste time on it. Doolittle admits that the Pettit divider is probably a good thing for the purpose for which it was intended. This is encouraging. Now, Mr. Pettit, see what you can accomplish with your dividers in the brood-chamber. May be you can get Mr. Doolittle thoroughly interested in these things. You have put dollars in my pocket; may be you will in his.

If the Root Co. have no machine that will

bore a large number of holes at once, my advice to them is to equip themselves with one. Bee-fever patients are very kind and free with their advice. This is one of the symptoms of the disease. When W. Z. Hutchinson reads this he will smile clear across his face and half way down his back, and he will say, "We have all been there; he's there now."

Eden, N. Y., March 31.

[It is an old idea, supporting sections in the super by means of the separators or fences. But it is not entirely satisfactory on account of shrinking and swelling. It may do in some localities under some conditions.]

Laying sections (oblong ones) on their sides is another old idea, but it has been abandoned because one long side of the box will be better filled than the other, and when the box is stood on end on the counter it does not begin to present as nice an appearance as one that was filled while on the hive in an upright position. Your boxes brought more money because they were larger—weighed more, and looked larger.—ED.]

WEED FOUNDATION AND ITS SUPERIORITY.

Starters in Sections; the Difference in Chewing Quality between the Natural Comb and one that has been Built from Full Sheets of Extra-thin Foundation; Cold-blast Smokers, Again; the Defects of the Clark, and how a Real Cold Blast should be Made; Fuel.

BY C. DAVENPORT.

For some years past I have made most of my own foundation; but last season I sold my mill, and, after using up what I have of my own make on hand, I shall probably buy what I use in the future, though I may buy a Given press, as a party here has one that he has offered to sell me very cheaply, and I have some curiosity to try it; but I think, as many others do, that it hardly pays one, unless he runs a very large number of colonies, to make his own. It is true that there is a great difference between the price of foundation and wax; but probably few who have not tried it realize how much work and bother it is to rig up, properly purify the wax, and make it into foundation; and, though I have had considerable experience, what I made was inferior to that which factories fully equipped for the work turned out. When the new Weed foundation came out I was much interested in what was said about it, and sent for a few pounds in order to test it. Since then it is the only kind I have used for bottom starters, and it is far superior to my own make for this purpose. Many bottom starters of my own make used to topple or fall over when the bees got on them. It is very seldom that the Weed make does this, and, as claimed, the bees seem more willing to accept it. Was it you, Dr. Miller, who said that, when using bottom starters, in order to have the bees accept the bottom starter, and join it to the upper piece, it was necessary to have the section nearly full?

Last season I conducted an experiment in

order to test the difference in value between full sheets and starters, and in this experiment I used about 1000 sections that had only small three-cornered starters at the top, and the bottom starters were about as narrow as could be fastened in with the Daisy machine, and I do not think there were half a dozen in which the bottom starter was not accepted, drawn out, and fastened to the upper one as soon as it was built down low enough. The flow was scant and irregular, too, which, I think, made the test more severe. I do not, though, put supers on until there is some prospect of the bees being able to store honey in them.

Now, Dr. Miller, I do not mean to insinuate that you do; but some one, I do not remember who, advised, or at least said he practiced, putting on supers as soon as the colonies were strong enough to occupy them, without regard to the flow. Such a practice would not answer here; for any foundation in supers might be torn down or smeared over with propolis if no honey were coming in. An excessive amount of propolis and pollen is a disagreeable but prominent fact here at nearly all times of the season. I am not advocating the use of so small an amount of foundation; but I have a number of wealthy customers who want the natural comb. They are willing to pay the price, and on this account they get what they want as nearly as it is possible to have it, though I have some doubt whether many if any of them could tell the difference between a section of natural comb and one in which a full sheet of extra-thin foundation had been used.

I think there is no question that bottom starters are a great help in getting the comb more firmly fastened to the wood; and this not only insures greater safety in shipping, and when handling, and hauling to near-by towns; but sections of honey in which the combs are well fastened to the wood are, I believe, a great advantage in an indirect way, for much of the section honey retailed is put into a paper sack, or tied up in paper, and delivered to or carried home by the buyer, along with other supplies; and if the comb is well fastened it is not nearly as apt to become broken and muddled up before it reaches the table, and a section of nice honey that reaches the table in good condition makes about as inviting and handsome-looking a dish to most people as can be imagined; and if, for instance, there are persons present who notice and comment on the handsome appearance, as they are very apt to do, the hostess will afterward have a kindly feeling toward honey, and many of the company will make a point to have honey to set before their company, and so on.

Since the above was written I have read the footnote to my article on page 351; but there is no need of my sending a smoker; for if you put the fire-cup of a Corneil on a Clark belows you will have about the kind I prefer. I get a tinner to make a cup nearly like the Corneil, except that it has a straight nozzle, and is made at the breech with a sliding door like the Clark. It is made with a detachable nozzle, which, when removed, leaves the per-

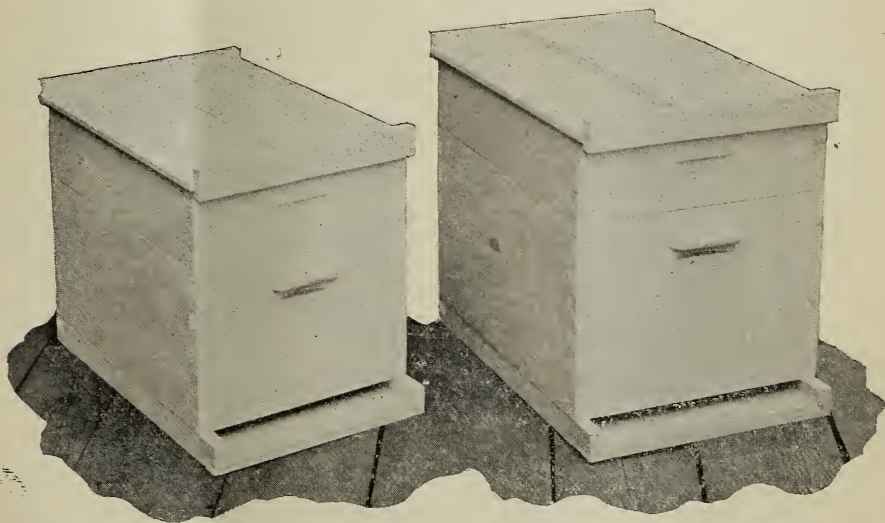
forated portion in front, as well as the air-tube, exposed, so they can be easily cleaned. I fasten such a cup on a Clark bellows, and it makes, in my opinion, a smoker far superior to any now made. The fire-cup to the Clark is too small; and, being larger at the breech, too much of a fire has to be started at first in order to keep it going. This soon consumes the fuel; and with a fire-cup made as the Clark is, even if of the same capacity, it will not hold fire nearly as well nor as long as a straight cup will.

But the kind of fuel I use may have much to do with the way I want a cold-blast smoker made. Other kinds of fuel might not give as

to me that bees could have lived here outdoors through the past winter and spring, if any have, and the method of protection that carried them through were known, it might be of much benefit to many; for the past winter was a most severe one—nothing like it here before in my time.

Southern Minnesota.

[I quite agree with you, and I doubt very much whether any connoisseur can tell the difference between the eating quality of comb honey built off from only a starter of foundation, and comb honey built from a full sheet of extra-thin; and speaking of the extra-thin,



THE COMPARATIVE DIFFERENCE IN SIZE BETWEEN A REGULAR EIGHT-FRAME HIVE AND A DRAPER BARN. SEE EDITORIALS.

good results in such a smoker. As I have before said, I use flax straw. After this has been exposed to the action of the weather over winter it burns readily; and when I want smoke, all I have to do is to put a twist of this in the smoker, touch a match to it, and it gives a good volume of smoke for from one to two hours without refilling.

Referring further to the same footnote, I think that, while the Dadants are in about the same latitude I am, there must nevertheless be considerable difference in the weather, for their bees had one or two flights the past winter. Here there was not a suitable day for the bees to fly, from about the middle of November until the fore part of April. Every colony in my immediate vicinity left outdoors perished; still, I know of none that were packed after the most approved methods. Call out your man Acklin, of St. Paul. I have heard that he practices outdoor wintering to some extent. It would be very interesting to me, at least, if others in this State would also report their success or failure in outdoor wintering, and in either case describe just how the bees were packed. While it hardly seems possible

we have now facilities for turning it out running 18 feet to the pound, and it has pretty fair side walls too. Owing to the greater strength of the Weed foundation, I am rather of the opinion that such wax can be used to advantage. We are now prepared to furnish it in any quantity that may be called for.

We have made smokers on the plan you speak of; but for real pungent smoke—the kind that conquers—the hot-blast, to my notion, is ahead of them all. In fact, I have had such a poor opinion of the Clark that I have seriously questioned the wisdom of selling it. There is still quite a sale for it, but I suppose it is because it is the cheapest smoker that is sold.—ED.]

BEE-PARALYSIS.

A Serious Enemy to the Bee-keepers of the South.

BY O. O. POPPLETON.

On p. 401 you tell of a case where bee-paralysis has seemingly started from a purchased queen. This is a very important matter—one

of which the known facts are too few to admit of any explanation. It will only be by those of us who have had some experience taking counsel together that any thing of value can be learned.

Several years ago I exchanged Italian queens with a neighbor, raised several young queens from mine the same year I got her, and the following season nearly every colony which had one of those young queens developed the disease. I questioned my neighbor closely, and he told me that, so far as he knew, his apiary had been entirely free from the disease up to the time he let me have the queen.

Some five or six years ago I obtained several fine queens from one of the most noted queen-breeders in the North. The colonies to which these queens were given showed no signs of the disease; but almost every one of their daughters developed the disease.

Last fall I purchased about two dozen young queens from a well-known breeder, and this spring nearly all of the colonies to which they were given have been ruined by the disease, so far as this season's work is concerned.

Three or four years ago I got two queens from each of two breeders—one in the North, one in the South. The progeny of these four queens has been all right.

The character of the men from whom these have come is such that I have never had the first atom of an idea that any of them knowingly sent me diseased stock. There is some reason back of and deeper than that why the daughters of purchased queens have been in my case so much more liable to this disease than were others; but I can form no idea what that reason is.

This is a very important matter, and I hope that, some time, some capable scientist will take hold of it and tell us the real cause and nature of the disease; how it is propagated and how it can be prevented. I can cure it, but at the expense of any income from the colony for the season.

Five years ago the disease caused me a very heavy loss; but the season closed with all colonies healthy. There has been very little since then until this spring, when it has again been very bad. But little of the disease can now be seen in the apiary; but it has made a very decided cut in my honey crop.

Stuart, Fla., May 22.

[In spite of all that I have said in these columns about the seriousness of bee-paralysis to our Southern bee-keepers, there is a very large number, and I am sorry to say one or two queen-breeders, who seem to think that bee-paralysis is a trivial matter, and hardly worth noticing. It is true, it amounts to nothing in the North—at least I never heard of a case where the disease spread or caused any serious destruction of colonies. Mr. O. O. Poppleton is one of the most careful and conservative bee-keepers I know of; and when he writes as he does, our readers may rest assured that bee-paralysis in the South is something to be dreaded—much more so than foul brood; but if Mr. Poppleton has a method whereby he can cure it, he has something that

bee-keepers have not heretofore known of. It will prove to be a real boon, and I hope he will tell our readers just how he stays the ravages of this disease. Heretofore we have regarded it as practically incurable; indeed, it has already driven two bee-keepers to my knowledge out of the business because they could not stop the ravages of the disease.—ED.]

LARGE HIVES.

A few Interesting Figures Showing the Superiority of Large Hives for Winter and Brood-rearing.

BY J. N. HARRIS.

I have read with much interest the discussions in GLEANINGS in regard to large hives; but as the Dadants have so thoroughly discussed the large-hive idea I do not care to say any thing further in regard to it, but simply give in my report in regard to wintering, in favor of large hives.

I went into winter quarters with 241 colonies in three apiaries, all in single-wall hives. They were wintered on summer stands with no other protection than chaff in upper stories, and tight board fences about the yards. They were in four sizes of hives on L. frames.

37 colonies in	8-frame hives,	winter loss	8
16	" " 10-frame	"	0
156	" " 12-frame	"	9
32	" " 16-frame	"	13

AVERAGE AMOUNT OF BROOD PER COLONY,
APRIL 25.

8-frame hives.....	3	frames of brood.
10-frame "	3¾	" " "
12-frame "	5	" " "
16-frame "	2½	" " "

It will be seen by the figures that I had the best success wintering in twelve-frame hives, which is my favorite size.

The most of the eight frame and all of the ten-frame hives were in the yard where the bees wintered best. I have always had fair success wintering in the sixteen-frame hive until this last winter.

The previous winter I had 103 colonies all in large hives, and lost but one colony. Losses were very heavy in this section of the country during the past winter.

St. Louis, Mich., May 16.

[It would seem that the 16-frame hive was too much of a good thing. I suppose because it is too roomy; that is there is too much cubic capacity to keep warm. The figures showing the proportion of brood-rearing up to the 16 size are somewhat significant. It is facts like these that should have some weight.—ED.]

LARGE HIVES IN CANADA.

Importance of Good Queens.

BY J. CANUCK.

Being a user and advocate of a large hive it is needless to say I have been much interested

in the discussion going on between the Dadants, Doolittle, and others; and I was pleased in reading that article by A. N. Draper, in GLEANINGS for May 1, to see that you had consented to test the large hive side by side with the Langstroth. I suppose the hive question has been more discussed than almost any other question pertaining to bees, and is as far from being settled to the satisfaction of every one as it ever was. I believe, as you stated in GLEANINGS a short time ago, that the majority of our great honey-producers use a large brood-chamber; still it is a fact that nearly all the writers for the different bee-journals are advocates of a small hive. Perhaps the other fellows are too busy, or else think it is no use to say any thing in the face of so much opposition. Be that as it may, it is refreshing to see that there are some few who are not afraid to tell of the superiority of the large hive. Most prominent among these, of course, are the Dadants, who have so persistently championed the large hive that I suppose that, in the eyes of the small-hive user, they appear something like the man who said that he never knew there were so many stubborn men in the world until he had served as juror. He had been on fourteen different cases, and the other eleven had held out against him every time.

I suppose I should not speculate as to what the results of your test will be; but I can not help thinking (perhaps the wish is father to the thought) that you will get positive proof that the large hive is away head for the production of honey.

There is one thing I wish to suggest to you, Mr. Root; and that is, don't put colonies into the large hives with queens that have been bred in little bits of hives for generations past. Some may laugh at this; but I know from experience that there is a good deal in it. I become disgusted in reading articles by prominent queen-breeders, stating that good queens should fill eight L. frames with brood before the main honey-flow starts. Why, Mr. Editor, at this date, May 9, I can show you lots of colonies in "barns" with nine and ten frames filled with brood from one end to the other (frames considerably larger than the Dadant-Quinby), and the hive boiling over with bees, and we have had a very backward spring—first pollen noticed Apr. 18, and fruit-bloom just beginning to open.

As you are aware, our honey-flow does not start for nearly a month, so you can see what, in my opinion, constitutes a good queen.

I have received several tested queens from one of the most noted breeders across the line, and not one of them was any good in my estimation. I have found that this breeder uses a very small hive, hence I draw my own conclusions as to why queens were not up to expectation. I trust you will give the "big fellows" a fair and thorough test; and it would be fine if we could have the satisfaction of having at least one editor on our side of the fence.

Hoodstown, Ont., Can.

[We are testing the Draper barns; but the season has been particularly unfavorable; and

another thing, our eight-frame colonies could not, of course, begin to fill them. A little later, and we shall be able to render a report of them, I think.—ED.]

RAMBLE 171.

Palo Alto: Bees, Chickens, and Pigs; a Temperance Lesson.

BY RAMBLER.

My next halt was at Palo Alto. The reason for the existence of this town is its nearness to the Stanford University; in fact, it exists upon the Stanford estate and upon the students of the University, for many of them have their lodgings here. Palo Alto is just the sort of town into which a temperance man loves to circulate. It is a town in which prohibition prohibits. The foundation of the town is laid upon the following corner-stone: "All persons who sell or allow intoxicants to be sold on their property forfeit said property." Every person who buys a town lot here receives a deed with the above provision. If he doesn't like the provision he can pass along to the next town. The result is a good class of people in the town, and the provision works like a charm. There are no saloons in Palo Alto. It is a clean town; and the faculty of the University, from President Jordan down, are pronounced temperance men.

I rambled into this delightful town, owing to the fact that one of my bee-keeping students was there. The editor of GLEANINGS will remember the bee-keepers' picnic that was held on the borders of Lake George, in New York, in 1890, and that the boy bee-keeper of the crowd was Brodie Higley. Well, here, after these many years, and after a three-years' course of instruction, he was ready to graduate, a full-fledged lawyer, at the time I found him. The bees he had learned to handle so successfully away back in York State had been something of a factor that had enabled him to finish his education.

The University is very progressive, but it has not made such progress as to establish an experiment apiary. I suggested to Brodie that the quadrangle around which the main buildings are located (the students call it the quad), with its smooth asphalt pavement and palm-trees, would be an excellent place to establish an apiary, and proposed to present the case to Pres. Jordan; but Brodie thought that would do no good, for the president always referred such matters to Mrs. Stanford; and as she was not interested in such small matters as bee culture she would be sure to sit down upon the proposition. Mrs. Stanford is a very large woman, and also very wealthy; and when she sits down upon a proposition that is the last of it. I do not like the idea of so much woman government; but as she upholds the temperance cause on her farm I have it not in my heart to find much fault.

If, some time in the future, the University should progress so far as to establish an apiary I hope they will not select a professor who will try to invent a new hive. For instance, a

few years ago the bee-keepers of California were in hopes that a permanent experiment apiary had been established at the State University at Berkeley. The professor who had the matter in charge attended two of our State Association meetings; but he ruined his reputation as a practical bee-keeper, and the station as well, by inventing a new and impractical hive. The moral we draw from this is that a professor of an experiment station must not only understand the theory of bee-keeping but the practical side as well.

After a good portion of a day's chat with Brodie I gave his hand a farewell shake and wheeled on to San Jose and various other towns. This portion of California is not distinguished for the number and size of its apiaries. Now and then an enterprising and up-to-date fruit-grower has a small apiary near his orchard, as an aid to the fertilization of the blossoms. This fertilization is particularly

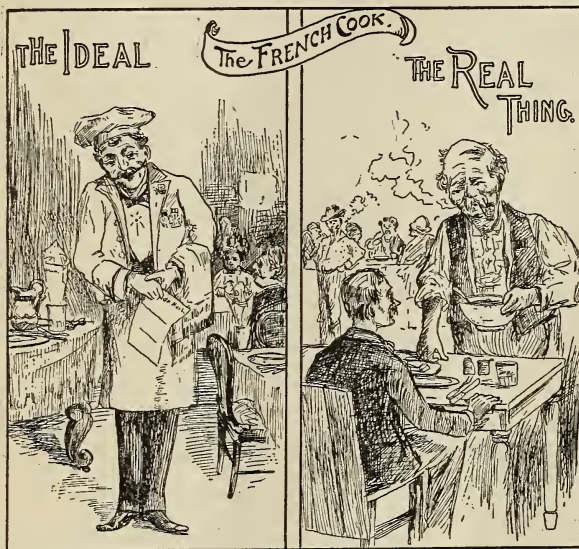
In such cases and with such people a refusal is taken as an affront, and the importunity changes to a desire to enforce hospitality; therefore it is better to take something, and my ready resort is to take a cigar. Taking something seems to confer honor upon the donor, and it is seldom that they stand upon what you take. I do not smoke; but while staying with Mr. Levering, in the northern portion of the State, the near-by storekeeper would always offer a cigar on every trade of a dollar or more, and I would take the cigar and take it home to Mr. Levering, and felt amply repaid as I saw him derive solace from it. So it happens ever since, wherever I may be, when the opportunity comes I take a cigar, not for myself but for Mr. Levering.

During the struggle between the men and the beer-bottles I made my escape to a barber-shop. Here I found a congenial artist, and we straightway fell into conversation upon the hard times and the scarcity of money.

"Say, stranger," said he, "I have just had my eyes opened about the cause of hard times during this thanksgiving. We have three saloons here, and each one of them puts up turkeys for a raffle. The poor laboring men all rushed in and raffled away their money, some individuals as much as five dollars, and then getting no turkey; and (do you believe it?) the saloons in this little one-horse town cleared one hundred dollars each. I used to do just such things; but a few years ago I found myself. Talk about hard times! just banish the saloon and you would see the best times on record."

I fervently said, "Amen!"

The next morning when I looked into the saloon it was deserted, and things were in much confusion. I counted 38 corks of beer-bottles scattered



beneficial to the almond-nut, which is largely grown here.

At Santa Clara my usual good luck in getting into a clean temperance house deserted me, and I found lodgment in a French hostelry with a saloon as the main feature; but I thought certainly that, with a French cook, I should have an up-to-date dinner, even if the surroundings did have the odor of beer. But here was a disappointment also. The rotund old fellow who officiated as cook and dispenser of beer spread his dishes upon the bare table with eggs, bacon, hard French bread, and black coffee. Frenchmen and dagoes gathered around, some in coats and some without; some on benches, some on boxes, and none on chairs. The feast was conducted in silence; but after it was over, there was a gathering in the saloon, and the corks of the beer-bottles began to pop, and the spirits of the guests began to rise. I was urged to take a social glass.

here and there. I concluded that the Frenchmen should immediately organize a searching-party for the avowed purpose of finding themselves. So much for an unavoidable experience in a beer-den.

If we travel much in this country we are struck by the variety of people we meet. All nationalities under the sun are represented; and my noonday lunch is taken at a wayside station presided over by an Italian lady. While I was doing justice to her hot biscuits and honey she kept a close eye upon me, and finally relieved her mind by propounding the following inquiry:

"Is you ze minister zata a go a by here to Vegas to preacha?"

"No, my dear madam, I am not guilty of any such thing. I am not the minister. I am only a poor bee-keeper."

"Oh! zata so I lika zat. We gotta a beerrancha to it, am a in a tree."

"That must be fine," said I. "Could I see your bee-ranch in a tree?"

"Certainly," said she, leading the way to the rear of the house; and, sure enough, there were four hives mounted on a platform nailed to the tree, the tree in a hog-corral, and the branches above the hives served as a hen-roost. It was a unique combination of hogs, bees, and poultry.

"Why," said I, "that must be a profitable plan, and your hives do not suffer from a lack of refreshing showers."

"Ze—ze showers?" said she, inquiringly.

"Why, yes! the tops of your hives."

"Oh! z-e-e fertilisher—ha, ha!—we use ze showers in ze garden."



But I considered the dirty complexion of the hives, and thought if there was foul brood anywhere it would be there, and said, "I should think you would have foul brood in your apiary."

"Oh, yesa! we doa; ze fowls a brooda; ze herea;" and she then proceeded to show me all the old sitting hens there were on the place. Of course, the fowls were all brooding. I observed that she was not up to modern methods of management, though her apiary was the most novel in its arrangement of any I had met.

I gradually withdrew from this hospitable place, and pursued my journey. That evening I boarded the train again, and halted not till I placed my feet upon the streets of lovely Los Angeles, the place that seems like home to me.

TWO CENTS A POUND MORE FOR HONEY IN PLAIN SECTIONS.

I used a few of your plain sections and fences last year, and was well pleased with the results. I realized 2 cts. a pound more for the honey in plain sections than what I did for that in the beeway sections. I had 14 colonies in the spring, increased to 36, and took 1400 lbs. of surplus comb honey, and did not have one pound of dark honey the entire season.

W. H. SWOAP.

DeYoung, Pa.



DOES THE LOSS OF THE STING CAUSE THE DEATH OF THE BEE?

Question.—Can a bee live and do work after it has stung a person, leaving its sting? Or does it die, as is generally believed by many persons who keep bees? Why I ask is this: A skunk was caught in a trap near a hive one warm summer night, and before I was up in the morning the bees from this hive stung the skunk to death, and its body was filled with stings to the number of thousands, it seemed to me, for there was scarcely a place but the stings and poison-sacs were a perfect mat. The hive was watched; but, so far as could be seen, there were no fewer bees in it than before, work continuing just the same, though the bees from this hive were very irritable for several days afterward.

Answer.—That a bee dies soon after losing its sting has been very confidently and repeatedly asserted. In fact, it has been considered by very many a "settled fact," and so has been reiterated without question. Up to within the past ten or fifteen years nearly all believed that a bee that had stung any one must surely die; for in leaving the sting, as the honey-bee nearly always does in stinging an animal, a part of the intestines was supposed to be left with the sting, poison-sac, etc., from which it was argued that the bee could not live. This seemed so reasonable that I formerly believed the idea which prevailed was true till one day, after a bee had stung me, leaving its sting, it came to attack me again and again, with all the fury and vengeance possible for a bee to work itself up to, getting in my hair, and singing away as only an angry bee can sing, which will make the cold chills run up and down the back of the most hardened bee-keeper. As this bee apparently had no thought of dying, it was caught and caged with two or three others, and kept a week or so to see what would become of the matter. At the end of the week it was apparently just as lively and healthy as any of the rest, when all the bees were set at liberty.

At another time, when putting up queens to send away, in catching the escort bees which were to go with the queen, one of them stung me on the end of my finger, leaving its sting, when it immediately ran into the cage. As I did not wish to remove all the bees and the queen to get it out, I let it go, soon after which the thought came to me that here would be a chance to test the theory of the death of the bee from losing its sting, as the queen was going into the remote parts of Texas, which journey would require seven or eight days' time. I accordingly wrote to the party to whom they were sent, telling him all about the matter, and asking him to take notice particularly when the queen arrived to see if

there were any dead bees in the cage. In due time he replied that the queen arrived in splendid condition, and that there was not a dead bee in the cage.

Several times since then I have tried similar ways to see if such bees as had lost their stings were in any way inconvenienced thereby, and, so far as I can tell, by means of confining them so as to know that I have the same bee, I can see no difference between such bees and those which have their stings, as to length of life. Nature understands her work very much better than we do; and it now appears to me that it was so ordained that the sting, poison-sac, and contents, might be torn away from the bee, and yet it remain as perfect in every other way, save the defending of its home, as it ever was. If such is the case we can readily appreciate the carelessness manifested in rushing to an attack upon slight provocation, rather than ascribing so much to the patriotism of "home protection," resulting in "the death of hundreds and thousands" of their numbers, which has been the idea of the past. Whether bees having lost their sting gather honey or not, or whether they are allowed to live in the hive without their weapon of defense, is something which would be next to, if not quite, impossible to tell, for in this case we have no means of keeping track of an individual bee. As bees which are in any way imperfect are not tolerated in the hive, it might not be unreasonable to suppose that the perfect ones might drive off one which had lost its sting, as being incapable of defense, were the hive attacked; yet as there are so many thousands, perfect and ready for defense, to where one has lost its sting, I hardly think such would be the case. At any rate I have often seen bees which have either stung myself or into my clothing, so as to lose their stings, alight back on their combs without any molestation by the other bees, save some little irritation from the perfume of poison in the air, having watched such for several minutes. If they did not then try to evict them from the hive, when would it be done? That it was not the design of nature for the bee always to lose its sting when defending its hive, is manifest where bees repel robbers to the extent of hundreds, and at times often thousands, which the slaughtered ones attest, when in such cases not one bee in one thousand loses its sting, is self-evident. In such times of great slaughter, each bee keeps its sting, so that it can slaughter bee after bee till the attacking party is repelled or they lose their lives in the combat. Then at times of the balling of the queen, hundreds of bees are slain, yet not one of the dead ever has a sting fastened to it. At times they do lose their stings in other bees, but this is the exception rather than the rule.

[I have several times confined bees deprived of their stings in queen-cages, and have had them live two and three weeks—just about as long as they would have lived if they had had their stings. The notion that bees die shortly after losing their sting is all a myth.—ED.]



FONDNESS OF BEES FOR VASELINE.

I noticed, the other day, a large number of bees working very busily on an old vaseline-keg, and they seemed as enthusiastic over it as if it had been a molasses-barrel. Can you explain the cause of it? and did you ever know of a similar case?

B. E. GOODENOUGH.

Barton Landing, Vt., May 4.

BAD RECORD FOR SMALL HIVES.

I would say all the good things you sent were received in due time. I am very sorry to say I am this year without a bee, it being my luck to use eight-frame hives; and my colonies being very strong the hives were unable to hold sufficient to feed my bees through winter so they starved to death. I will discard those hives and try again as soon I can get some more.

WM. LEATHAM.

Armada, Mich., April 30.

HONEY-DEW OF INSECT ORIGIN.

Friend Root:—I would add my testimony to Prof. Cook's in regard to honey-dew. This morning I saw the bees gathering it from the leaves of the wild California walnut, and I feel quite sure that not one person in ten would notice the source of this honey-dew. It came from a small yellow aphid lying close along the mid-vein on the under side of the leaves. I have noticed honey-dew for the past twenty-five years, and have never failed to find the insect source. Now, if nine people should say to you, "We saw honey-dew on a walnut-tree this morning, near McIntyre's gate, and did not see any insects to produce it, so it must have come down from heaven," and I should come up and say, "I also saw the honey-dew, and here are the insects that produced it," which would you believe? To my mind the idea of obtaining honey or sugar from the air is absurd; and when a man testifies that he saw honey-dew without insects, it only proves that he is a poor observer.

Sespe, Cal., June 15. J. F. MCINTYRE.

[The fact of insect origin can not be doubted now. It's settled.—ED.]

ODOR AS WELL AS COLOR; TESTIMONY OF ONE OF THE MOST EXTENSIVE BEE-KEEPERS.

I consider odor of clothes as great a consideration as color. I buy light odorless clothes, and have no trouble. Bad-smelling clothes are irritating to bees. I am now resting one of my teams of browns, and drive one gray and one brown, and let them pasture off the grass from among the bees. The gray pastures much longer than the brown without being stung; but switching the flies would be the only thing that would cause the bees to sting. The brown would be stung at a distance. I notice the above every day I am at this Piru apiary. It is a further proof that

color and odor are a consideration in working among bees.

M. H. MENDLESON.

Ventura, Cal.

AN IDEAL HIVE-TOOL.

There have been several hive-tools described in the bee-journals, and none of them appears to be a success. I call mine an ideal tool, from its easy working and simplicity. I think the cut will be explanation enough, although



a few points will help to make the construction of the tool more simple.

No. 1 is a round point with a long taper, run down until $\frac{1}{2}$ inch thick, for raising covers, prying up supers, and loosening frames. No. 2 is a thin piece of steel riveted to the blade, for removing burr-combs and propolis. This scraper should be 1 inch long. No. 3 is a square hook for lifting division-boards and frames. This hook should be $\frac{1}{4}$ inch long. The tool should be 10 or 11 inches long, $1\frac{1}{4}$ wide, 2 from the hook up to the scraper.

Arden, W. Va.

J. H. ALLEN.

BEE-VEILS AND W. Z.

If you want to win my hearty thanks, make the No. 3 veils three inches longer. Until you do, mine must have a new tail fastened on, for there is little romance in having the veil come out of my collar, and result in a big neck. The better (?) grades of veils do not interest me. How men with long necks like "W. Z." get along with such short veils is more than I know.

W. A. H. GILSTRAP.

Grayson, Cal.

[Three inches longer! Why, I do not see what you want of so much veil. If you put it on the way we do, by drawing the lower edges under the suspenders, as shown herewith, you



will find the veil amply long. By measure I find they are 24 inches in length, which ought to make them reach from the hat down to the shoulders, and leave plenty of selvage to spare. Perhaps you wear an extra-broad-brimmed hat. If such be the case, the veil might be short; but if we add 3 inches to all our bee-veils, then some other fellows would be ready to give us their "hearty thanks" if we would make them shorter in the first place. But, say; if you will make, in your future orders, a distinct specification for 27 or 30 inches, or any length you may name, you can have the veils just to your liking.—ED.]



J. R., Iowa—Hives in which bees have died should be closed up bee-tight; then, when wanted, swarms can be hived in them, or the individual combs be placed in other hives where the bees are in need of stores or more room.

J. R., Mich.—Bees build combs night and day. They work for nothing and board themselves, and then divide the "profits" at the end of the season; that is to say, if they have any profits to divide. But bees will not draw out foundation at certain seasons of the year. If it is not placed between two frames of brood or next to one frame of brood, or made to stand by itself when no honey is coming in, bees will not draw it out.

E. E. W., Mass.—Always leave a bee-space over the top of the frame. The best way we know of to find queens is to pull the frames out, one at a time, and examine both surfaces until she is found. If you have never seen a queen you had better get some old bee-keeper to point her out the first time. No amount of rapping on the hive will compel bees to stay in a location if they have been moved from some other portion of the apiary.

H. M. Z., Cal.—The acid we use for refining beeswax is sulphuric—the ordinary commercial article. It should be reduced in water from 50 to 500 times. If the wax is then boiled in this water, or heated by a steam-pipe, and then allowed to stand for a few hours, it will turn to a bright lemon yellow. The amount of acid to be used will have to be determined by experiment. If you reduce it to one in a hundred, and then keep reducing as long as you can get the clarifying effect, you will get the proper solution.

F. W., Wis.—Entrance-guards should be placed on the hive, and secured at the entrance with two nails. They are used, generally, either to confine in the hive any undesirable drones, for mating purposes, or to prevent the escape of a swarm by holding a queen in a hive. Entrance-guards are very often used instead of clipping, because they save the trouble of hunting up queens. We prefer clipping as a rule; but when we are a little crowded in our work, and do not wish to bother to hunt up a queen in a populous colony, we clap on a guard and let the hive go. If a swarm issues when the apiarist is present, all he has to do is to put an empty hive with frames of foundation on the old stand, removing the old hive to another location. The supers, if there are any on the old hive, should be placed on the new one. When the swarm returns it will go back into the new hive and begin work, and the old queen can be put with the swarm or not as may be preferred; but as a rule swarms should be supplied with queens—if not with an old one, with young ones. To prevent swarming, queen-cells should be destroyed in nine days; but this operation only serves to discourage swarming.



By some sort of oversight or misunderstanding, the quotations of A. V. Bishop & Co., of Milwaukee, Wis., have been omitted from the Honey Column. They appear again as usual, in this issue.

THERE is little to add to what I gave in our last issue regarding this season. It is later than last year by two or three weeks, and it is perhaps too early to get reports. I am safe in saying that clover and basswood has been a light crop over the country generally, and prices should rule much higher for such honey. Those who have honey should avail themselves of a free advertisement of one insertion in our Honey Column.

EDITOR HOLTERMANN'S LOSS.

It is with much regret that I learn of the sudden death of the six-year-old son of R. F. Holtermann, editor of the *Canadian Bee Journal*. On the 12th of June the little fellow was playing about as usual, as robust and healthy as any child could be. His father, who was resting at noon in the hammock, asked the boy if he wished to go to a gospel meeting for children. He said he did. The boy disappeared around the house, and soon after a sharp cry was heard. The mother responded to the call, and found the boy in convulsions. Mr. Holtermann summoned a physician within ten minutes, and in a few minutes more he called another. "But all was over in about half an hour." Death was attributed to sunstroke as the result of being bareheaded and having the hair rather short. Mr. H. says it has always been his custom to go with the children to the barber's to see that the hair is not cut too short; but the last time he could not go. However, Mr. H. says "that is the human side of it." He recognizes in it God's hand. "It has been for some wise purpose." GLEANINGS extends its sincere sympathies. Personally we of Rootville have not been called on to go through such an affliction, but we feel, nevertheless, for those who have.

VERNON BURT, THE BEE-KEEPER WHO ALWAYS HAS A CROP OF HONEY; THE PLAIN-SECTION AND FENCE SYSTEM AS SEEN BY A. I. R.

YESTERDAY, July 14, I wished to try a new wheel, and Ernest told me to go over and get a report from Vernon Burt in regard to his honey crop. On reaching his home I found he was three miles further at an out-apiary. Before I reached this out-apiary my heart was rejoiced by seeing great fields of red clover; in fact, I found out afterward that in that particular locality many farmers make a business of raising clover seed. The fields were literally red with clover-blossoms, and you could see the red for a mile away. I found friend Burt had just been taking off honey. There was

not a bit of robbing anywhere, not a bee buzzing around the honey-house, but they were actually bringing in loads of honey, and filling sections. When he exhibited a dozen or more of the handsomest sections it seemed to me I ever saw in my life, I began to think that these were some "extra selected;" but after I picked sections out of different cases at random, I uttered exclamations of surprise.

"Why, look here, old friend, how is this? These plain sections are just about as clean as when they came out of our sandpapering-machine; and there has been no scraping, because this just came from the hive."

"Well, Mr. Root, that is the great thing about those plain sections and fences. Ernest has got the thing rigged now so there is not a chance for the bees to touch the outside or edges of the section anywhere except a little place on the bottom, and that is so trifling, and so much out of sight, that I would not give a cent to have my sections scraped and sandpapered. In fact, I think they look nicer just as they come from the hive, without being fussed with."

Now, I suppose I ought to have been better posted; but this was indeed a revelation to me. Twenty or thirty years ago, when I was so full of enthusiasm about having eight sections of a size just fill a Langstroth frame, with just one pound of honey in each, I do not believe I ever dreamed of any thing as perfect and handsome as these I had just been looking at. The honey was not only beautifully capped, but it was attached to the top, bottom, and sides in such a way that there is scarcely a possibility of its being broken out with any sort of decent handling in shipment. Mr. Burt remarked, "Yes, that is another point. I never had any sections in my life so well filled out, and so perfectly attached to the section, as these built with those new fences. You tell Ernest to come out here and see what I have got to show him. And you may say to him that he need not waste any more time and breath in defending the plain sections. If you folks keep up the kind of workmanship you have given me this summer, this arrangement will talk for itself and make its own way clear through the whole bee keeping world."

Now, to tell the truth, I have several times felt there had been almost too much breath wasted in defense of the fences. A good thing does not need "boosting." Mr. Burt has already taken 72 just such sections from several of his strongest hives; and even during this poor season, when almost everybody is lamenting, and talking about "another failure," Mr. Burt is going to have a nice crop of honey, even if the bees should stop right where they are, and go no further. He has something like 150 colonies in his home apiary, and nearly as many in the out-apiary. He says he thinks he could get more honey during a poor season with 50 or 60 colonies in one place instead of three times that number; but in a very good season a large number would get plenty, and it is ever so much less work to care for a larger apiary all in one place.—A. I. R.

"A GOOD CATCH ; " TEN DOLLARS REWARD.

A VERY handsome half-tone, showing basswood in full bloom, makes up the beautiful frontispiece of the July *Review*. Mr. Hutchinson seems to have an eye for the useful and the beautiful.

By the way, we have been having some correspondence of late in regard to photography. Incidentally I happened to mention in one of my letters that it was very difficult to get a good human subject to appear natural while being photographed, as he is almost sure to look at the instrument, and give that self-conscious stare that spoils the *very soul* of the picture. In reply to this, Mr. H. says:

I appreciate most fully your ideas on the subject. It is a pleasure to meet one who can catch the true spirit of a thing like this. How hard it is to break up that old habit of staring at the camera! Unless you fight for it you are sure to be beaten in this respect every time with the average subject.

There, now I might as well let the cat out of the bag. I have been wanting a frontispiece for the new edition of our A B C of Bee Culture, and would be willing to pay \$10.00 to the first one sending a fine clear photo, *such as I want and can use*, showing a young lady of prepossessing appearance becomingly dressed, holding a swarm of bees on a limb she has just cut from a tree. She must not look at the camera while the picture is being taken—no, no! She must have about her an unconscious air of ease and grace that one of her sex has when she thinks there is no one to admire or flatter. Unconscious beauty in a human subject is the very soul of real art. For the second best picture I will pay \$5.00. All letters to close by Aug. 15.

N. B.—For obvious reasons the name of the young lady whose figure will grace the frontispiece of the A B C will not be given below the picture, neither will it be known. All that will be put below the half-tone will be, "A Good Catch."

THE PHILADELPHIA CONVENTION.

The next meeting of the United States Beekeepers' Association will be held in Philadelphia, 5, 6, 7, during the Grand Army encampment in that city, for during this time very low railroad rates can be secured. While having the convention at these times runs the bee-keepers into big crowds, and sometimes compels them to submit to unpleasant quarters, yet experience has shown that it is only at such times that we are able to secure a good attendance; for without some large attraction, when universally low rates can be secured, it is almost impossible to have a representative meeting of bee-keepers; but at the meeting at Buffalo we had a practical demonstration of the fact that, when low rates can be secured, we can also have a good attendance, even if we do have to sleep on cot-beds and pillows of straw. Well, here is what the secretary, Dr. A. B. Mason, has to say about the whole matter:

STA. B, TOLEDO, OHIO, June 26, 1899.

Mr. Editor.—I have been faithfully trying to get the railroad rates to the G. A. R. encampment at Philadelphia for the information of those bee-keepers who may wish to attend the convention of the United States Bee-keepers' Association on the 5th, 6th, and 7th of next September, and find that in the territory

covered by the Central Passenger Association the rate will be one cent per mile each way, "with a minimum of \$11 (except that the fare will not apply via Pittsburgh, Pennsylvania road, and Washington), but via Harrisburg direct," but the \$11 rate will be waived where the current first-class one-way fare is less. In such cases the fare will be one cent per mile each way in the Central Passenger Association territory added to the authorized one way fare for the round trip from the nearest Trunk Line gateway (or station). Tickets for sale Sept. 1 to 4, inclusive.

The rate in the territory covered by the Trunk Line Association will be "one fare for the round trip with a minimum of \$1.00, except that the fare from New York and Baltimore will be \$3.00; from Washington, \$4.00; from Newark, N. J., \$2.85; from Elizabeth, N. J., \$2.75; and proportionately from intermediate points. One fare to New York plus \$3.00 from points west of Binghamton and Syracuse via New York, going and returning same route." Tickets to be sold, and good going, Sept. 2 to 5, inclusive.

The Central Passenger Association territory includes that part of Canada lying south of a line running from Toronto nearly west to Lake Huron; the southern peninsula of Michigan, that part of Illinois lying east of a line running from East St. Louis to Chicago, including both of these cities; all of Indiana and Ohio; that portion of Pennsylvania lying west of the Allegheny River, and that part of New York lying west of a line from Salamanca to Buffalo.

The remainder of the United States lying east of the Mississippi River, and south of the Ohio River, and those portions of Pennsylvania and New York not in the Central Passenger territory above described, and all of New England, are in the Trunk Line Association territory.

In both the territories named above, "tickets will be good returning to Sept. 12, inclusive, except that by deposit of ticket with joint agent at Philadelphia, between Sept. 5 and 9, both dates inclusive, and on payment of a fee of 50 cents, return limit may be extended to Sept. 30, inclusive."

Rates have not yet been fixed by the Southwestern Passenger Bureau and the Western Passenger Association, but both have promised to inform me as soon as announcement is made.

By inquiring of the station agent, any one can readily learn the rate of fare.

Side trips to Washington, Richmond, Norfolk, Gettysburg, Antietam, and other points of interest, will be provided for at about one fare for the round trip, or a cent and a half per mile for circuitous routes.

In a letter just received from Mr. F. Hahman, secretary of the Philadelphia Bee-keepers' Association, he writes in substance:

"If those expecting to attend the convention will write me we will find quarters for them; those not notifying us will have to take their chances, as we can not engage rooms for anybody except those we are sure will come."

Let me suggest that all such as desire entertainment write Mr. Hahman *at once*, or as soon as they have decided to attend the convention, so as to be sure and reach him by Aug. 15 or 20, and tell him what you wish provided. Mr. Hahman's address is Harrowgate Lane, Sta. F, Philadelphia, Pa.

The Philadelphia Association proposes to find good lodging-places for all who notify Mr. Hahman, and breakfast at the lodging-places if possible; and dinner and supper can be had at some of the numerous restaurants near the place of holding the convention, which will be in Franklin Institute, at 15 South 7th Street, between Market and Chestnut Streets.

A. B. MASON, Secretary.

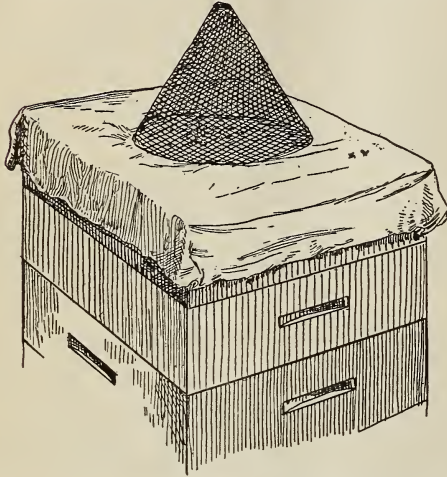
THE MILLER BEE-ESCAPE.

A FEW days ago I was looking over my collection of snap-shots that I took when I was visiting Dr. Miller last fall at his home in Marengo, Ill. Among them was a picture of the Miller bee-escape. Of this I have had an engraving made, and now present it herewith. It consists of an ordinary wire-cloth cone about 8 inches high, and perhaps eight inches in diameter at the bottom. At the edge is secured a cloth that will fit tightly over the hive or a pile of stacked-up supers.

Dr. Miller's usual method of emptying out supers, if I am correct, is to shake out as

many bees as possible, then stack them up five or six feet high. Over the top is then placed one of these escapes, the cloth being wet so as to hold it securely down all around the hive-top, leaving the bees to escape by the cone.

This, I believe the doctor claims, works more rapidly than the Porter and escapes of a



like character, because it admits of a large amount of light, owing to the eight-inch opening through the cloth. As the cloth is wet, it hugs the top edges and corners of the uppermost super, so as to render it practically bee-tight except through the cone. The escape is easily made, and now is just the season for one to give it a trial. For out apiary work where one wishes to take off the honey at one and the same trip it may be better than the Porter.

But methinks I'd rather go down the night before on a bicycle, slip on the Porter, and then go the next day and take off the supers without any shaking, smoking, or stacking up of supers.

THE DRAPER BARN.

It was Dr. Miller who first gave the name of "barn" to a ten-frame Langstroth hive having frames and hive-body 2 inches and an eighth deeper. One would imagine that an ordinary eight-frame Langstroth hive, having frames of regular depth, would look small in comparison with these barns; but the difference is not so great as one would imagine. I had two hives placed side by side—one of the aforesaid barns and one of the standard eight-frame Langstroth hives, each having a comb-honey super on top. A photo was taken, and the result is shown in half-tone on page 537. It will be apparent from the illustration that the difference is not nearly so great as one would imagine. The very word "barn," when applied to a hive, is suggestive of something of monstrous size.

Speaking of these barns calls to mind the fact that they will take any of the ten-frame standard Langstroth bottoms, covers, supers, sections, extracting-supers, and Langstroth

bodies of standard depth. If there is any thing in having a large hive, the ten-frame Langstroth of extra depth would make really less confusion than a twelve-frame Langstroth of standard depth. The latter would require a different bottom-board, different cover, different super, and could not be used interchangeably with other hives in the yard.

Now, let it be understood that I am not advocating Draper barns, neither am I advocating twelve-frame Langstroth hives; but if there is call enough this season for the barns we will catalog them for next year.

A MODEL QUEEN-REARING APIARY; NEATNESS AND ORDER IMPORTANT REQUISITES FROM A FINANCIAL POINT OF VIEW.

ELSEWHERE in this issue, p. 534, we present a very fine view of one of the largest if not the largest queen-rearing apiary in the southern hemisphere. It is operated by Mr. H. L. Jones, of Goodna, Queensland, Aus., a queen-breeder who has sent us a number of interesting and valuable articles on the subject of cell-building and queen-rearing.

This apiary contains about 300 colonies; and while it presents a remarkably neat and orderly appearance, its owner says it was not "got up for the occasion," as the photographer came along unexpectedly. It is very seldom that one sees an apiary of such trim neatness in its usual working order. On the other hand, it is not uncommon to see hives in the average yard more or less tipped sidewise, a little out of square with the points of the compass, weather-beaten, unpainted, besides quite an array of old brood-frames, sticks, old covers, old bottom-boards, and other things too numerous to mention. I do not mean to say that bee-keepers of this country are disorderly; but in the rush of the season, and when every thing is "hurrah boys!" and "any thing and every thing to get there quickly," we are liable to find things in not quite dress-parade style for a snap-shot photo.

I am proud to say, however, that our own queen-rearing apiary, just back of our factory buildings, will compare favorably with the Jones apiary shown on page 534; and for this state of things our thanks are due to Mr. Wardell, our apiarist, who has always been used to having every thing in order.

I believe that it was Mr. Hunt, junior, son of M. H. Hunt, who, in the *Bee-keepers' Review*, said it cost no more to produce honey (or queens, for that matter) when every thing is kept neat and orderly than when the reverse is true, and I suspect he is right. It is a great aggravation to have tools and implements scattered all over the yard, to say nothing of the effect of the weather upon them.

At our basswood yard, over which I have direct personal supervision, the covers, bottom-boards, supers, etc., not in use, are stacked up in the center of the yard. Here, also, is a barrel of fuel, some matches, tools, etc.; and when I close up operations for the day I endeavor to have every thing back in its place, so when I return I can go immediately to work, knowing exactly where to find tools and hive parts.



SOMETHING ABOUT GOOD ROADS AS WELL AS STRAWBERRIES.

The good people in Xenia, Greene Co., O., whom I visited just about a year ago, wanted me to be with them at their annual strawberry convention again this year; so I started out on my wheel on the morning of Decoration day, May 30. They were commencing to celebrate at Medina in the morning before I left; and I found them celebrating, and was obliged to mix in with the throng more or less, both at Upper Sandusky, Wyandot Co., O., which I passed through on my wheel, and at Marion, O. As there had been recent rains, making the roads almost impassible except where there were stone or graveled pikes, I took the train until I was near one of the pikes in Wyandot Co. After getting off at Tymochtee Station I found I was but six miles from where a graveled pike starts; and going over that six miles tired me more than riding thirty or forty miles afterward. It is a little singular that the western part of our State should have these beautiful stone and graveled roads, while in the northeast part such a road is almost unknown. If horses could talk as wheelmen do, no doubt we should have heard pitiful appeals for good roads long ago; and, oh the difference it made when I once struck a hard smooth stone road! Why, it required no effort at all to fly just like the wind; and in many places the road was so level and smooth there was scarcely a sound or a vibration. The beveled gear made a little bit of whiz at every revolution, and the fine particles of stone made a very little gritting sound as the tires passed over them; and, by the by, I think it must be true that a cinder path or a smooth graveled road is really easier to ride on than an asphalt pavement. Yet I can not understand why this should be so. On the asphalt there seems to be a little bit of sticking of the rubber to the smooth surface; but where there is just a little bit of sandy grit, the tire seems to be "loose," if that is the proper expression. It almost flies over the road without really making close contact.

In getting the requisite grade the road is banked up perhaps three feet, on an average, higher than the bottom of the ditches on each side. Through the influence of heavy rains and the traffic of wheels these roads become hard and smooth. The dirt sides become heavily sodded, and the freezing and thawing of winter, and the heavy rains and freshets of summer, seem to make scarcely an impression on them. I suppose a good deal is owing, of course, to the material used and to the skill with which the road is put together, especially on the surface, and finally the care with which little cavities are mended before there can be time for any water at all to stand in even the shallowest puddle on the surface of the road. I began to wonder, just before I reached Upper Sandusky, if the soil was not naturally better fitted for road-making than in

Medina Co.; but between Upper Sandusky and Marion there is a piece of about a mile that, for some reason or other, has never been piked and graveled; and this mile—why, I actually had to get off and go on foot. The clay soil was cut up in such deep ruts that it was not possible to ride a wheel at all. That one mile used up my strength, besides taking lots of time, more than riding ten miles on a good road. Now, what is true of riding a wheel is more or less true of getting over the country with a horse and buggy. The horse is used up, the vehicles yanked to pieces, and time wasted—how many times a day, do you suppose? I have sometimes counted the vehicles that pass our home in a limited time. Very often in good weather a dozen teams are in sight at once, and there must be toward a thousand that go over the road both ways in the course of a day. Suppose each one of these thousand rigs suffers from all the losses I have mentioned, during just one day in the year, how much could the great world at large afford to pay for good roads?

After getting my supper at Marion I began to inquire a little about bee-keepers. I was told there was one, named G. B. Smeltzer, at Smeltzer's Corners, two miles out of the city. These friends were a good deal surprised and greatly delighted to find A. I. Root with his wheel actually standing before them. Friend Smeltzer, like most other bee-keepers, is interested in gardening. He showed me some of the most luxuriant plum-trees actually bending under their loads of fruit, and the fruit only half grown at that. Every plum seemed perfect—not a curculio sting. The only reason he could give was that there were not curculios enough to go round. We looked over the trees by the light of the lantern, and both of us decided that it was out of the question to think of propping up the limbs, for each little branch would need a prop. Picking off the green plums until the tree could stand the load of those remaining, seemed to be the only remedy. Now, bee-keepers usually have not only a nice garden, fruit-trees, and things of that sort, but the most of them are skillful mechanics. A great institution, called the Huber Manufacturing Co. in Dayton, had discovered the mechanical skill of my good friend Smeltzer, and had offered him enough to come and work in their factory during their great rush, so he was rather neglecting his bees and other things at home.

Next morning my trip was over a road not a bit behind the one of the day before, and on my way to Marysville I passed right along the banks of the beautiful Scioto River, passing through Prospect. Once or twice I was discommoded where they were putting on new gravel to repair the pike; but that was not to be compared with getting through mud roads that had been cut up while the ground was soft, and had afterward dried.

A thunder-shower obliged me to seek shelter just before reaching the pretty city of Marysville. But that did not hurt their kind of roads at all; in fact, I was on my wheel again almost before the drops had ceased falling. You see my chainless Columbia is just right

for that kind of work. During the afternoon I was hindered so many times by rain that I finally waited for a train at the town of Irwin, between Marysville and Springfield.

The gathering of bee-keepers and strawberry-growers was at the same beautiful place in a grove surrounding a schoolhouse. The friends of the year before were present, and we were also honored by the presence of Mr. Nick Ohmer himself, and his good wife; and last, but not least, his brother, J. P. Ohmer, was on hand. The latter brought a Nick Ohmer strawberry-plant growing in a tub. I thought I had seen some gigantic specimens of Nick Ohmer strawberries and fruit on our own place; but that plant in the tub "broke the record," in foliage, size of leaf, and size of fruit. Three or four great stems of fruit, almost as large as peaches, reclined on the edges of the tub, and made a very appropriate object-lesson in letting people know the possibilities of strawberry-growing. A quart of berries stood beside the plant, showing twelve berries making a heaping boxful. Some of you will no doubt recall to mind the fact that J. P. Ohmer is the man who grows strawberries successfully through the sides of a barrel. He told us that, although the barrel culture was a success, the average person would probably be unwilling to take the necessary pains to make it a success. I was very anxious indeed to accept his kind invitation to call at his place and see his strawberry-barrels; but my time was so limited I was obliged to forego that pleasure.



Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for those that love him.—I. COR. 2:9.

No good thing will he withhold from them that walk uprightly.—PSALM 84:11.

Until recently I have always rather supposed that the first of my two texts referred to the home in heaven, after this life is past, and no doubt this is true; but an experience of the few days past has made me think that it may also refer to our lives here on earth—to a life that is in full accord and harmony with the plans of the great Father above. As the experience I allude to comes interwoven in a recent wheelride, I think I will give you the story in detail, even if the whole does not refer directly to our texts. In this way it will be more connected.

About 42 years ago, when I was a boy in my teens, I traveled over a portion of the northwestern part of the State of Ohio called the Black Swamp at that time; and almost every summer for several years past I have declared I was going over the ground I passed in that boyhood trip, and see what changes forty years or more had wrought. Along the last of June, when the strawberry season was over, I told Mrs. Root that, when we had a good

strong east wind, she might expect me to start off very suddenly on this trip. Monday morning, the 26th, was bright and cool, and there was quite a strong wind from the north-east. Toward noon it began to blow sufficiently to send a wheelman at pretty good speed, and I expected to start right after dinner. But copy for the journal had to be looked after, work assigned to the different men and boys in my department, and it was after two o'clock before I was ready. It came so near supper time I told Mr. Root I should like a nice piece of beefsteak to sort of back me up for my long ride. After eating the steak I remembered some other things that had to be seen to, and it was just three o'clock when I got on my wheel.

By the way, during the hot weather of late my strength has been somewhat oozing out, and it was hard work to get up either strength or enthusiasm. I think it was on the afternoon of that same day that I thought of praying for physical strength just as I did at Yellowstone Park, and I went off by myself and asked for just that one thing—physical strength if it was the Father's pleasure to give it. The prayer was answered, for I think I never rode twenty miles any easier than I did that afternoon, reaching Wellington just about five. About this time I was ready for another steak, and then I was off for friend Boardman's, at East Townsend, Huron Co., about 20 miles further. I might have made it very easily had not darkness and sandy roads come in both together; therefore it was after nine o'clock when I heard the welcome roar of his 200 or more hives of bees. God has not seen fit to bless friend Boardman's home by giving him a family of children; so when I came up on the porch and ran against a baby-carriage, it was one of my first pleasant surprises; but in talking about bees and other things during the evening I rather forgot about the baby-carriage until the next morning, when I was up and looking over friend Boardman's beautiful grounds among the hives, various kinds of fruit-trees, his poultry-yards, etc.

As I stood out near the well, a baby face peered around the corner of the doorway, and then dodged back. Pretty soon I caught a glimpse of it again; and after a little effort to scrape up acquaintance the little one and I were good friends. I had been greatly enjoying walking around the pretty home, and that innocent little face capped the climax. I felt more intensely than I had ever before, perhaps, that no home is quite complete—at least no neighborhood is just what it ought to be—without one or more baby faces and childish prattle. A mother had died in their place, leaving this helpless infant; and Mr. and Mrs. Boardman had taken it into their home. At breakfast, the little one had a place right beside me. Although scarcely a year and a half old, she sat by herself, fed herself for the most part, listened to and smiled at our talk on gardening, bees, poultry, etc., and seemed to be happy and contented, even though she had no memory of her own mother. Mrs. Boardman remarked, "Mr. Root, our baby never cries before she goes to sleep, and never cries when

she wakes up. She is always quiet, happy, and smiling, just as you see her now." It really touched my heart to look at the little one. She almost seemed to realize that she was to a certain extent to care for her own little self, a motherless baby. The very thought seems to appeal to the best instincts of humanity. Who is there who would not share his last crust with such a one?

Friend Boardman was not getting any honey the morning I left, or none to speak of; but he has two or more strings to his bow, and so he has recently introduced some very pretty and efficient poultry-houses. Every thing is as clean and neat about the poultry as it is about the bee-hives; and if the bees are not bringing in honey the poultry are bringing in eggs. In my boyhood days poultry-keeping commended itself to me inasmuch as you do not have to wait very long for some income from your investment. If managed properly the poultry should produce something to sell, not only every day in the year, but the very *first* day the plant is started. With the aid of the poultry-droppings friend B. has a piece of ground of rare fertility, and he had a crop of Giant Gibraltar onions that promised great things.

I had been told there is a beautiful cinder path for wheelmen, between Norwalk and Bellevue. I got on this wheel-path in the cool of the morning. It is, perhaps, from two to three feet wide. The surface is hard and smooth, but there are just enough very fine cinders to make a little bit of rustle as the wheel flies over them. A great part of this path is under beautiful shade-trees, trimmed just high enough so as not to hit one's head; then pretty dooryards in front of tidy homes come right up to the wheel-path. In the suburbs of the towns, beautiful lawns and flowers make every thing look lovely. A little out of Norwalk the path goes down on a curve opening up a glimpse of a beautiful river, and then speeds up and down, along the river-bank. The cinder path is so hard and firm and *safe* that you can go down one hill at lightning speed, and your wheel courses around graceful curves, down one hill and up the other. My first real thrill of happiness came when I passed a pretty home with a great luxuriant clematis partly covering the porch. There were hundreds of blossoms spreading their petals like butterfly wings, up to the morning sun; and then the tint—a brilliant purplish blue—that seemed to be almost *too* beautiful to be a thing of this world. I have told you before that I am partially color-blind; that is, I can not see red fruit amid green leaves a certain distance off, as other people do; but thank God I am *not* blind to the beautiful *tints* of the floral world. I have all my life admired a certain shade of clematis blossoms; but the one I saw that morning was really startling in its glorious beauty. I tried to think of words that would express what I beheld. *Entrancing loveliness* comes the nearest to it of any thing I could think of. Once before in Bermuda, when a glimpse of the immense mass of bougainvillea, almost covering a residence, broke on my view, I experienced something

like what I felt when I saw this clematis. It really seemed as if the plant nodded and smiled as it noticed my thrill of pleasure. I do not like the word "intoxication," but I might say that, for a minute, it seemed as if I was intoxicated with its beauty. Thank God, there is nothing wrong in *this* kind of intoxication. Then another thought came to me: That clematis and that home are not *mine*; but I am enjoying them just as much as if they were. It is God's gift to humanity, in response to careful painstaking and toil. The owner, if he should see this, would not feel a bit hurt to think I shared this pleasure with him, even though it cost *me* nothing. I remember hearing about some one whom people called crazy because he said he owned *every* thing. He explained this by remarking that all things belong to God, and what was God's was his, and that, although these beautiful things in this world were not especially his property, or the result of his toil, yet he enjoyed them fully as much as the real owner—perhaps far more than many of the millionaire owners. This thought came home to me.

A little further along some humanitarian had planted cherry-trees along the road. These were bending with loads of fruit. I saw that other travelers had been helping themselves, and so I helped myself, and thanked God for the luscious fruit. After I had eaten as many as anybody ought to eat, I noticed over the fence the most beautiful tree of cherries I ever saw in my life. They were of a peculiar mottled red, or purple, that struck me as being the most fascinating color for fruit I had ever seen. No colored plate in any nurseryman's catalog ever produced any thing so beautiful as this tree loaded with gorgeous bright fruit. It thrilled me very much as did the clematis. There was, of course, a longing to taste and see whether it was really equal to what imagination pictured. The owner's house was quite a little piece away, and there did not seem to be anybody at home or I would have gone and begged the privilege of purchasing a few of those luscious cherries. And something said, "Old fellow, you have had cherries enough for one time, certainly. Now teach yourself to enjoy *looking* at these, and admiring them *without* tasting, when you do not need them."

I had a long ride before me, and it was time to go on. I looked at the cherries, and again felt a longing to taste them; and then I decided to try to learn in my old age to enjoy things without touching them or appropriating them, just as much (or perhaps *more*) because I exercised a little self-sacrifice. And then I looked at that beautiful tree with its loads of fruit gracefully bending in the morning breeze, and felt another thrill, and I rather think one of a higher type, in rejoicing to see what others had to make them happy.

Now, dear reader, do not think me foolish or sentimental when I tell you of another thrill of joy and happiness that came to me that morning. I was undecided about my way. No one seemed to be near of whom I might inquire, until I passed a pretty young lady, probably a teacher going to her school.

She smiled very pleasantly, gave me all the information I desired, and then, like the clematis, there seemed to be something in her smile that was almost roguish or playful. The clematis said to me something like this:

"Mr. Root, you did not know before that there was any thing in the whole wide world so pretty, did you? Well, I am glad to have given you this pleasant surprise, and to remind you again that 'eye hath not seen, nor ear heard, neither have entered into the heart of man, the things that God hath prepared for those who *love him*.'" Then it occurred to me that, for many months back, my heart has been unusually pure, and free from sin or sinful thoughts, and I was reaping the promised reward. I did not want the clematis. There was not a trace of the sin of covetousness in my heart. I enjoyed having the clematis belong to the man who planted it and cared for it. In regard to the cherries, I did want them at first, but afterward I experienced a keener thrill of pleasure and joy by not touching or tasting them, even though the owner would doubtless have given them to me freely had I asked for them. And now may God help me to be careful just how I say what I wish to; but before I say it I wish to tell a little story.

Since the death of Dr. James Brand, of Oberlin College, it has been my pleasure to listen to a sermon in regard to the life of that good man. Dr. Brand grew up in the wild forests of Canada, with almost no opportunity at all for an education. He hungered and thirsted for books, but was too poor to buy them. When he was well along in his teens he attended the meeting of a debating society at a country schoolhouse. The subject was, "Which is greater—the works of God or the works of man?"—that old, old topic. Young Brand was long, lank, awkward, and uneducated. His hearers were laughing at the miserable work he was making; but his last illustration of the works of God turned the scale. In summing up the case he asked the audience to give their attention *finally* to God's grandest work, a beautiful woman; and then the eloquence he displayed in after-life broke forth for the first time, and with cheers and applause he won the day. To the soul that loves God, nature and art *both* unfold beauties that a bad man never gets a glimpse of; but whether it be flowers or fruit, or the subject that Dr. Brand called up for his closing argument, let us remember that to enjoy these things really, self and selfish feelings and passions must be gotten rid of. They must be *crucified* and put out of the way. Then shall the soul be prepared to enjoy these gifts that God prepared for him from the beginning of the world. "No good thing will he withhold from them that walk uprightly."

Before leaving home I proposed to explore a cave in the neighborhood of Flat Rock, Seneca Co. When I came into that little village I was told there was no hotel, but that I could get dinner at a farmhouse near by—a dainty little country home, with fruit, flowers, and a pretty garden adjoining. The men folks were at work in the field; but *another* pleasant

young woman smilingly told me I could have dinner, and, furthermore, that I could lie down in a cool breezy place, and have a nice nap before dinner. As I closed my eyes and sank into unconsciousness, more thrills of thanksgiving and praise came into my heart. I have put up at hotels where it cost a dollar for lodging and a dollar for each meal; but, oh dear me! such hotels can not compare with this country home. We had a beautiful dinner of things from the garden, and a cherry pudding for dessert. Now, I do not know how other folks feel about it; but no great hotel or Pullman dining-car ever served such a delicious cherry pudding as that was. Perhaps one thing that made me enjoy it was that I felt it was a *Christian* home. While I am speaking of the rest and refreshment that I enjoyed so much at Flat Rock, let me tell you about my dinner in a little country town two days later. I will not give you the name of the town *this* time. There was only one hotel in the place. It was half hotel and half saloon. The saloon was the "bigger half." I felt that I should be misused in that place if they knew who it was who sat down to dinner, so I decided to make no remark that would give any one a clew as to who I was or where I came from. Before we were half through, however, a burly red-faced man at the head of the table commenced:

"Stranger, a'n't you a preacher?"

I assured him I was not.

"Then you belong to the Salvation Army, certain."

I told him he was mistaken again. Finally he said:

"Well, I know you are a *Christian*, any way."

At this charge, I was obliged to show my colors, and to admit that he was right. Then I asked him:

"My dear sir, may I inquire why you first took me for a minister, then declared I must belong to the Salvation Army, and finally *insist* that I am a Christian, any way? What do you see about me that makes you take this position so strongly?"

"Well, I knew you were a Christian the first time I looked at you. I can see it in your face."*

Just then it occurred to me what is said in Revelation: "He that overcometh will I make a pillar in the temple of my God. . . And I will write upon him a new name." If there is something in my make-up that proclaims I am a Christian, even when I try to avoid the subject, then shall I rejoice. I am inclined to think, however, that my face strongly proclaimed to every one that I was not a *drinking* man; but that man's face strongly proclaimed to the whole wide world that he *was* a drinking man, and a hard drinker too.

When I started out I had asked for physical strength. The petition was granted, and I rode thirty or forty miles every day for several days; less fatigued, perhaps, than I ever was before with such roads as I chanced to find

* And they shall see his face; and his name shall be in their foreheads.—REV 22:4.

after the rain that came once during the night. I asked for physical strength, and that only. The prayer was answered, and far more than I ever thought of asking for. I had enjoyed a glimpse of the beautiful world, met pleasant people, and had one of the most delightful times of my life.



SELLING RECIPES FOR DOING THINGS, ETC.

In a recent issue of one of my favorite agricultural papers is the following advertisement:

POTATO-GROWING.

For a number of years past I have been experimenting in the cultivation of potatoes, and have succeeded in developing a mode or process of planting, by which their yield is increased at least 50 per cent. The only extra expense above the usual or ordinary way of planting them is two days' extra labor per acre, for one man at the time of planting. In all other respects the potatoes are cultivated and cared for in the usual way. I will mail the instructions, giving full directions, and explanation of the new mode of planting, for the sum of \$1.00.

D. TYLER,

806 North McKinley Ave., Canton, O.

As I am interested in all improvements in growing potatoes, I sent the dollar at once, and the following is what I received, so badly written that it was really a task to decipher it:

NEW MODE OF PLANTING POTATOES.

Prepare and have the soil ready for planting in the usual way of getting the same ready for ordinary planting. Select the seed potatoes from good and well-matured potatoes. If necessary to cut them, cut lengthwise and with three to four eyes to the hill. Do not break off the sprouts before planting. The potatoes will, of course, send out new sprouts, but every repetition of sprouting is weaker than the first, and the breaking off of the first sprouting-eyes, and also the selecting of small or immature potatoes, is the greatest cause of the deterioration or the running out of potatoes. It is also of great importance that potatoes intended for planting should be kept in a cool and dark place, so as to prevent their sprouting before they are planted. They should, however, be selected and gotten in readiness a few days before planting, and exposed to the sunlight, spread out, if possible, for a few days.

When you have dropped or planted, and before any ground is covered on them, cover or drop, say, a quart or three pints of cut straw, hay, or chaff, or a mixture of them, on the potatoes—that is, on each hill, and with either an old broom or any convenient thing spread the straw or hay covering so that there will remain, say, about an inch of the covering on the potatoes, and also all around them, the same thickness—that is, as far as the covering will go; then cover the ground or soil on and over the covering that is on and about the potatoes, using or covering the same amount or thickness of soil as you ordinarily cover over potatoes when planting them—say if loose loamy land, 4 to 5 inches; if sandy loam, 3 to 5 inches; and if a heavy soil, 2 to 3 inches.

Cultivate and attend the potatoes during their growth in the usual and regular way, keeping them clear of grass and weeds.

The cost or time consumed in preparing the straw or hay should not be considered as an expense, as the benefit that they will render the soil will more than compensate for the cost of it, and will be a benefit for two or three successive crops of any sort.

Almost any kind of straw or hay will answer the purpose; but either must, of course, have been dried or cured. Musty or sour grass or hay will answer the purpose.

It will take, say, about 300 bushels of cut straw or hay to the acre of potatoes for the covering. The hay

or straw should be cut no longer than an inch; shorter will be better.

I have found "level culture," no hilling, the best, as they are not as liable to suffer from drought, and also saving some labor.

Plant during the "dark of the moon." I have found it prevents excessive running into tops of the plants, which they are liable to if in rich soil. D. TYLER.

Now permit me once more to protest against this whole business of selling information in this sort of way; and I want to protest vigorously to the editors of our various agricultural papers. Instead of accepting an advertisement of this sort, send the man a dollar, and then print his great secret, for the benefit of your thousands of subscribers. I do not know how many have sent a dollar as I did. I hope not very many, because our people are too well posted to bite at such baits.

Let us take a common-sense view of the matter. A dollar should buy a good-sized book full of illustrations on potato-growing. In fact, it would buy all the books devoted specially to potato culture, and leave some money, if I am correct. And then the knowledge furnished in this way is never new or valuable, so far as my experience goes. I have been sending money for every thing of the kind offered for years past, and the above is a fair sample of all the valuable information (?) I have ever received. The plan of sprinkling straw or chaff on potatoes before covering is not at all new, and strawy manure is ever so much better than the chaff or cut straw, only it is apt to induce scab. Father Cole, the author of the "New Agriculture," used the same plan, except that he used forest leaves, and he declared that the latter are very much better than chaff or any thing of that sort. Matthew Crawford, the great strawberry-grower, has for years used wheat bran. He says this will produce a larger result than any commercial fertilizer, but he afterward said it did harm instead of good during very dry seasons. No doubt friend Tyler *thinks* his idea is new, but he is not at all posted on potato growing. He has not read the books devoted to the subject, nor even the agricultural papers; and I was not at all surprised to see, toward the close, that old exploded nonsense about the "dark of the moon." Perhaps some of my good friends right here will jump up and declare that planting at the right time of the moon is all right. I have only to say again that different experiment stations have tested this "moon" business with more care and scientific accuracy than any farmer ever did, and they have decided that the moon has no effect whatever, either on the vegetation or on the weather.

With the exception of the moon part, the directions are all very good for caring for potatoes; but I would expose the potatoes to the light, spread out a very much longer period than mentioned above—that is, where we want to plant late and still preserve the sprouts. We spread ours out on trays on the barn floor from the first of May until the last of June—sometimes clear into July where we plant that late. Where ground is suffering from a lack of humus, a pint of chaff to each piece or potato might make quite a difference

in the yield; but very rarely, I think, as much as 50 per cent. We have for years used various kinds of rubbish in the same way, such as weeds, grass, corn fodder, old straw, grain or corn stubble, or any thing we could scrape up that will rot and produce humus. Put it in the furrow after you have dropped your potatoes, and be sure it is all well covered up with dirt; then if you have a big rain afterward, this trash will all be rotted by the time the potatoes need it. This trash need not be dry; in fact, I would rather have it wet; and green grass, or even green corn fodder, can be used in the same way. But *by all means* the cheapest way to do this is to plow under green crops, such as a heavy growth of clover, before you plant your potatoes; then the potatoes should be put down so that they get very close to the green clover; and, in fact, this is the way the great potato-growers of the United States mostly manage. Cutting up dry straw, and handling it in the way indicated, may do for a small garden — not one where potatoes are grown by the acre. And, by the way, these valuable instructions (?) seem to be for planting potatoes in the old-fashioned way, three or four pieces *in a hill*. I had almost forgotten that anybody planted potatoes in that way now.

OUR POTATOES AT THIS DATE, JULY 11TH.

Our ten acres are looking beautifully, and we have managed this year so as to keep them almost absolutely clean without the use of a hoe at all; that is, there are no weeds except a few at the ends of the rows. These we get out with a hoe; but in the middle of the fields the rows are almost absolutely clean. This was done by the use of the slanting-tooth smoothing-harrow and the weeder. Stirring the soil enough from the time of planting until the weeder could not be used any more because the potatoes are so large is an absolute cure for weeds. When the potatoes get so large as to begin to shade the ground, very few weeds will start. As a rule our potatoes are so far almost free from blight, and bugs have made comparatively little trouble. They seem to pitch on to the poorest and most spindling hills; whereas the rank strong vines are not likely to be troubled with bugs, unless it is the blister-beetle. These have commenced in a few places, just as they did last season, and we know of no better method at present than knocking them down on the ground with light paddles and stamping them under foot, and in this way driving them out of the patch. During very hot dry weather along the first of July, in many places our extra-early potatoes showed something that might be called blight. The leaves curled up, and finally turned black around the edges. I think this must be in consequence of the heat and lack of rain. My impression is, the heat of the sun on the hot ground has also something to do with this. I will tell you why. The potatoes in our orchard that I spoke about, planted right on top of a heavy growth of timothy, dandelions, and clover, and then covered with straw, have the most perfect foliage at the present writing of any in the whole ten acres. In fact, there is

not a leaf that is curled up or turned black around the edges; and, strange to tell, so far not a bug of any kind has bothered these potatoes under straw. I can account for their rank luxuriant growth by the fact that the ground is damp and almost wet down under the straw, and has been so during all the dry season so far. The great growth of green stuff that was rolled down there and covered up, rotted so as to make a damp mass of stuff that was for a long time wet and slimy. The sun has never touched the ground at all, on account of the straw; and until the drouth set in these potatoes seemed rather too wet. So far I am very much pleased with the experiment; and I learn by the agricultural papers that almost all kinds of garden stuff, such as melons, cucumbers, etc., have been grown successfully in a similar way. On a part of the ground where the straw is not quite heavy enough the dandelions got through to some extent; but a sufficient covering of straw will drown out and rot out even the dandelions. A potato will get up through a mass of straw that would be too much for any sort of weed, if I am correct about it. Of course, we can not tell what the crop will be just yet; but there are lots of little potatoes the size of hickorynuts, as clean as if they had been washed in water.



THE WELLS AND SPRINGS OF THE STATE OF OHIO, AND THE WATER WE DRINK.

I have just been exceedingly interested in quite a good-sized paper-bound book, entitled "The Rock Waters of Ohio," by Prof. Edward Orton, of the Ohio State University. I have before alluded to the fact that we have an Ohio State Board of Health, and that the water furnished the people in any town or city in Ohio has to be examined and passed upon by the State Board of Health before it can be furnished to said town or city. Prof. Orton has gone all over the State collecting facts in regard to the matter of wholesome drinking-water for our Ohio people. The book mentioned tells all about the experiments in drilling, different depths, quality of the water obtained, analysis of the water from our great springs, and a complete discussion of the whole subject; and last, but not least, he tells us that typhoid fever, diphtheria, and other similar diseases, have entirely disappeared in families where they used entirely the water from these deep wells after it was approved by the State Board of Health.

Now, there is not a man, woman, or child, I might almost say, on the face of the earth, who is not interested in this matter. Your letters have told me for years past of sickness and death in your own homes, and many of you have told of these very fevers. Think of giving the innocent children or babes, con-

taminated water to send them to untimely graves, or injure their health for life! Think of keeping the doctor day after day, week after week, and month after month, and paying him a bill that goes away up into the hundreds of dollars, when it might all have been saved by providing good wholesome *water to drink!* Why, you had better go without a clock in the home; you had better go in ragged clothing, or put up with insufficient food, rather than give the slow poison of infected drinking-water.

These things have been talked over and over until every farmer who takes a newspaper knows how a well should be made. Keep the surface water from getting into it at any time of the year. Every family knows, too, that the well should be away off from the stables, privies, pigpens, and barnyards. Better still, get the water out of the rock, and have an iron tube go clear down into the rock, or something equivalent. In very many parts of our State, flowing wells are obtained by going to sufficient depth. Springs, I believe, are usually safe, but not always so. Better have the State Board of Health examine the water. Cisterns, if kept clean, are much safer than the average well; but in hot weather I think I would have the drinking-water boiled, then cool it afterward if you want it cold.

At present writing I can not discover exactly where this book is to be procured. It comes from the Government Printing-office at Washington, and has been sent out this present year. If you live in Ohio you might write to Prof. Edward Orton, Ohio University, Columbus, Ohio. If you do not live in Ohio, direct your letter to Charles D. Wolcott, Department of the Interior, Washington, D. C. Just think of driving typhoid fever and diphtheria out of the large cities *at one stroke*, by furnishing said cities good drinking-water from one single artesian well! And now almost every county-seat in our State is provided with drinking-water approved by the Board of Health, and hundreds of other cities and smaller towns are fast falling into line. May God be praised that good wholesome water is so near at hand, and in such great quantity, if we only reach out our hands (or, rather, bore down to the rocks) and take it as a free gift. I am personally acquainted with Prof. Orton. He is an enthusiast, like myself, in this matter of good pure drinking-water for the whole wide world. This is just the season of the year, friends, to get stirred up on this *exceedingly* important subject.

THE ANTI-CANTEEN LAW AND PRESIDENT M'KINLEY.

On page 369, May 1, I closed my remarks in regard to this matter by saying:

Surely the President of the United States has something to say and something to do in a crisis like this.

Well, from that time to this I have been more troubled about this one thing than any thing else that threatens our United States of America. I reason that, if this thing is to be an example and a *precedent* for officers of the law (when they touch the liquor-traffic)

throughout the United States, we are in greater danger than ever before. In view of this you may be sure I rejoiced when I saw in the *Cleveland Leader* for July 12 that a delegation of our best temperance men had personally visited our President, and laid the matter before him. Below is the conclusion of quite a lengthy article in regard to the matter:

The paper declares that the agitation upon this subject will not subside, and the President is asked to give a rehearing upon the construction and interpretation of the law.

The members of the delegation after their call reported the President as saying that the opinion of the Attorney General was given without any previous knowledge on his part—that he did know that any opinion had been asked for by the Secretary of War, neither did he know that such an opinion had been given until several days afterward, and that he would look into the matter personally, and if the opinion of the Attorney General was found to be correct it should stand; but he added that all men are fallible, and that if the Attorney General had made a mistake he had no doubt he (Griggs) would be ready to rectify it—that he was an able lawyer and a man honest and courageous.

It seems a little strange that the Attorney General did not know what the Secretary of War had been doing in regard to the canteen business, and *still* stranger that an honest man could read that law and decide it meant that the canteen business should *go on*. Never mind. We hope and pray that our President may insist on having this *crookedness—straightened*.

KIND WORDS FROM OUR CUSTOMERS.

I have intended two or three times to stop GLEANINGS, but I would find something in each issue worth a year's subscription, so I guess I will keep on taking it, even if the bees do have to go. C. H. GILMORE.
Langdon, Minn., May 24.

I have just received strawberry-plants, Carrie and Margaret, and was astonished at their appearance of crisp and vigorous freshness, promising much for so small a start. I was not aware plants could be shipped by mail, and come out so little damaged. I have received plants by mail before, but never any like these. DR. HOMER BOWERS.

New Ross, Ind., June 23.

SAMPLES OF THOSE PEANUT-CELL QUEENS.

Yours of June 30, inclosing four queens, arrived July 1, at noon, all in good condition. I introduced them as per directions. All were cheerfully accepted by the bees, and liberated in 30 to 40 hours. Yesterday I examined them all, and found them "fat and happy," and laying profusely in every empty cell, occasionally two eggs in a cell. They are all beauties, and especially the majestic select Italian queen. I think I never saw a finer queen. I would not take \$5.00 for her. C. S. INGALS.

Morenci, Mich., July 9.

Labels received. They please me very much. Other goods received, and are very satisfactory. A few of the dovetails are cut a little too deep in the extracting-supers for close-fitting frames. By making some shavings $\frac{3}{8}$ thick, and putting in the dovetails when nailing, I maintain the proper inside length, $17\frac{1}{4}$. I am so glad there is nothing seriously wrong. The general workmanship is excellent. While you have no extra help (necessarily unskilled) working for you I wish I knew just what I wanted for the next ten years, because another such dull season may not come. But, hold on! I can order during the winter months, can't I? Your extra help is gone then. I hope to get my orders in *early* in future. One reason why I did not order any thing last winter is because I was undecided, and wanted to make certain wintering observations before making up my mind.

Eden, N. Y.

E. W. BROWN.

QUEENS, QUEENS, QUEENS.

By Return Mail.

Bred from imported mothers; dark leather-colored stock; extra honey-gatherers; also from light yellow and albino strains at very low prices. My stock is of the best. Forty years' experience warrants me in saying this.

Select tested.....each,	\$1.50.
Warranted purely mated.....each,	.75.
Warranted purely mated.....six,	4.00.
Warranted purely mated.....dozen,	7.00.

Send for 40-page catalog of bees and queens; also a full line of bee-keepers' supplies, including The A. I. Root Co.'s goods at their prices.

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Adel Bees ARE not Italians; they are GOLD-EN Carniolans, and practically a non-swarming, non-stinging strain of bees, great honey-gatherers, and sure to winter. Tested queens, each, \$1.00; six queens, \$5.50, or \$9.00 per dozen. Every thing guaranteed. Book giving 37 years' experience in rearing queens sent free.

HENRY ALLEY, Wenham, Mass.

July Prices on Queens. : : : :

Large yellow queens from fine Italian stock, the best of honey-gatherers. Untested, 50c each; \$6.00 p-r dozen. Tested, \$1.00 each. Orders filled promptly, and satisfactorily guaranteed.

J. W. K. Shaw, : : Loreauville, La.

A RARE CHANCE

to purchase an apiary of 200 colonies of Italian and Carniolan bees in 10-frame Langstroth and Dovetailed hives. The hives are two-story, with 10 brood and 8 extracting frames in top story, all wired for extracting. Combs are straight, and in fine condition; last year's crop of honey was over 700 gallons from 150 colonies.

Purchaser can occupy the present good and convenient location of two acres, well shaded with a comfortable residence for a family, for \$10.00 per month, within 100 yards of fast line of electric cars that go through main part of New Orleans every five minutes. Mail service twice a day. Poultry-houses and yards at cost of wire netting in fences, and some fine poultry for sale; also furniture in house.

All must be sold, and location abandoned on account of poor health. All honey, poultry, and eggs can be sold in city home market at good prices. Correspondence solicited.

J. W. Winder, Halfway House, N. Orleans, La.

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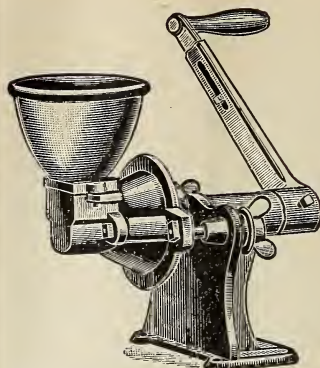
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J. D. GIVENS, Lisbon, Texas.



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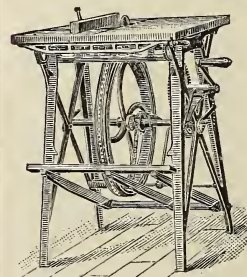
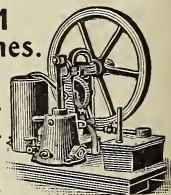
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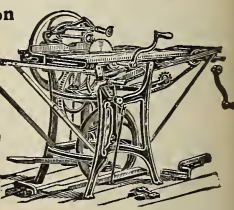
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